The new sciences of chaos and complexity and organisational change : a case study of the Open University

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THE NEW SCIENCES OF CHAOS AND COMPLEXITY AND ORGANISATIONAL CHANGE: A CASE STUDY OF THE OPEN UNIVERSITY

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Submitted for the degree of

Doctor of Philosophy of the Open University

September 1999

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DATE OF SUBMISSION : 17 SEPTEMBER 1999

DATE OF AWARD : 22 SEPTEMBER 2000

ABSTRACT

This thesis investigates the use of ideas and insights from the new sciences of chaos and complexity in organisations, especially in organisational change interventions. It contends that organisations are still dominated by approaches derived from classical, traditional science and that these are no longer very helpful. Newer approaches to organisational life are emerging, including the learning organisation, and these offer innovative ways forward. Other more radical ideas are also emerging from understandings derived from the new sciences.

It uses a detailed case study of the Open University to explore the use of a range of change theories in introducing change into a complex, complicated, traditional organisation. The change process studied used ideas drawn from modern notions of strategic change but also some ideas available in the literature which draws on insights from the new sciences. Stacey's (1992, 1993, 1996) work particularly his 9 point complexity theory of organisation (1996) is used to provide a theoretical framework.

This thesis concludes that the new sciences offer an effective and innovative way of introducing organisational change and offers a *transition* model of strategy which may serve as an enabling bridge between classical notions of change and a new sciences approach. It supports and builds upon Stacey's work by showing the benefits of using of self organising principles, especially self organising teams, as part of a strategic change intervention. Further it adds to the ideas on the human dynamics of change, suggests ways in which to introduce such a strategic change process and offers an additional interpretation of the development of teams in organisations.

ACKNOWLEDGEMENTS

I owe a huge debt to the Open University for generously giving me a three year secondment from my role in the Personnel Division to the Centre for Complexity and Change, Technology Faculty, to research this thesis.

I owe particular thanks to Philip Marsh, Director of Personnel, who proposed my secondment and who has so enthusiastically supported me throughout. My thanks also go to Geoff Peters, Pro Vice Chancellor, Strategy and Joe Clinch, then University Secretary, without whose support my proposed secondment would not have become a reality.

My supervisor, Dave Wield has my especial thanks. His approach has always been positive and encouraging and his expert guidance and wise advice absolutely invaluable. Roger Spear too, offered insightful and supportive comments which enriched my research experience. Without their joint support I would still be struggling.

Finally, my thanks to my family, friends and colleagues who encouraged me from the sidelines.

PUBLICATIONS

Material contained in this thesis has been used in the following three publications:

McMillan-Parsons, E., 1997, 'Time for a New Language, A New Discourse: A Naive Proposition', in Stowell, F.A., Ison, R.L., Armson, R., Holloway, J., Jackson, S., and McRobb, S. (eds), *Systems for Sustainability: People, Organizations, and Environments*, New York. Plenum.

McMillan-Parsons, E., 1999, 'Chaos and Complexity - the way to transform organisations ready for the next century: insights from a case study of the Open University', in Castell A.M., Gregory A.J., Hindle G.A., James M.E., Ragsdell G. (eds), *Synergy Matters: Working with Systems in the 21st Century*, New York. Plenum.

McMillan-Parsons E., 1999, 'Chaos at the Open University: A Case Study', *Organisations and Practice*, Vol 6. No. 2. Association of Management Education and Development.

CONTENTS

CHAPTER 1

INTRODUCTION AND OVERVIEW

In this thesis I argue that many approaches to organisational change are drawn from a world view that is no longer consonant with the 1990s. Traditional notions of organisations and how to change them may have suited more stable times but do not offer effective solutions to organisations coping with the fast flowing uncertainties of the late 20th century. However, the development of ideas on learning and the learning organisation, by people like Senge, Dale, Pedler and Burgoyne offer a demonstrably useful set of ideas for today's organisations. Other writers like Morgan and Handy have also broken with tradition and offer insightful and innovative ways of considering life in organisations. Thus the contemporary literature on managing organisations is being injected with some powerful and fresh ways of thinking.

Recently another set of management literature reminiscent of the more radical ideas on change has been emerging - the literature based on the new sciences. This has been informed by ideas from chaos theory, complexity science and research at the Santa Fe Institute. These ideas have been taken up by people who have a major interest in organisational change like Stacey, Wheatley, Merry and Nonaka. When I first began this thesis in July 1996 the set of literature on organisations which drew on ideas and insights from the new sciences was very new and not well known. This thesis builds on this emerging base, looks at one organisation in considerable detail and attempts to build new knowledge from a detailed case study.

This thesis investigates an attempt at organisational change at the Open University from 1993 - 1996. The intervention studied was implicitly informed by

some ideas from the more innovative organisational change theories and by understandings of the potential implications of some of the new sciences research. This thesis seeks to understand and evaluate this change process and to add to the knowledge base on organisational change derived from ideas from the new sciences.

While the case study investigates in considerable detail a change process in one organisation, the overall approach of this thesis is by contrast holistic and systemic. It considers a sweep of ideas and insights, with a literature review that is wide ranging and eclectic, drawing on writers from many backgrounds and disciplines and from many sources. Thus this thesis aims to provide an integrative approach (Capra 1996). One that combines an emphasis on the fine detail that comes with close investigation with a focus drawn from a more distant holistic perspective.

This thesis aims to embrace many aspects of how organisations might be transformed by using ideas drawn from the new sciences. Therefore, it seeks to consider the implications as they have emerged, whether they have been strategic, operational or employee based. But there is a special emphasis on investigating the role that the people in an organisation play in transforming that organisation. The term 'people' refers to everyone who works in an organisation regardless of role or status. I would contend that they, rather than high level, strategic planning processes and formal change interventions, especially top down ones, are the real key to understanding organisational change. Thus this thesis argues that it is human dynamics which bring about real 'second order' change and renewal. That is change that is not surface but deep down, where thinking and behaviours are significantly changed.

The new sciences encourage us to look not just for formal structures and content but for patterns, flows and processes and this I have tried to do. In so

doing I have sought to flesh out the work of Stacey and others by adding to the people dimension, that is the behaviours, emotions and learning patterns and processes that flow through an organisation and give it its life and characteristics.

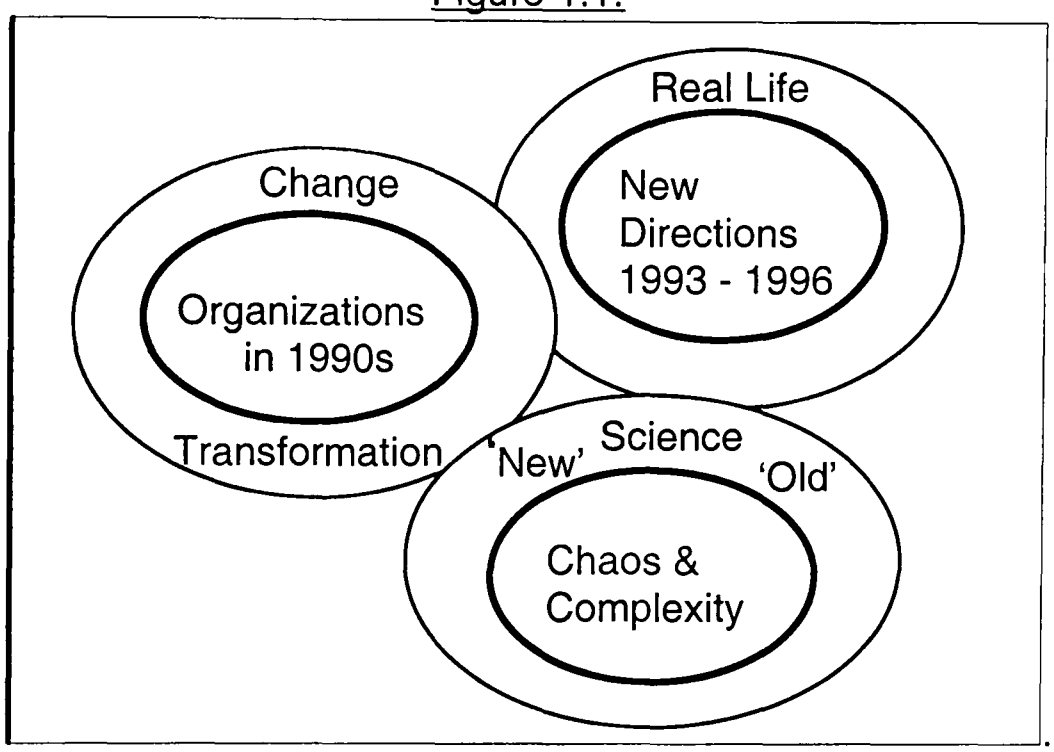
The Open University was set up in the late 1960s early 1970s and broke the mould in higher education with its delivery of distance learning and open access policies. It was an innovative organisation which experimented with radical ideas for course design and delivery and in so doing developed the course team and experiential learning. However, as the University grew so it became more formalised and bureaucratic and a number of contradictions emerged. It set out to be a democratic institution that sought to involve the staff in its governance, yet the procedures it set up to do this excluded many of them, particularly the more junior grades. Thus by the 1990s the formal structures and bureaucratic procedures dominated a compartmentalised organisation within which informal groups, course teams and innovative individuals sought to work creatively across it.

Today the University is a many faceted institution with a large administrative function, including design, publishing and warehousing, ten academic units, and 13 regional centres. Thus there is a multiplicity of cultures and management styles. In some areas of the University there is a large measure of democracy and staff empowerment with managers that are keen to innovate and change. However, there are many areas with Taylorist approaches to management, where the senior staff have a strong attachment to the status quo and resist all attempts at real change. Thus the University is a good organisation on which to base a case study on organisational change.

I began work on this thesis in 1996 when I was given a two year secondment, later extended to three years, to study the New Directions programme at the

Open University from 1993 -1996 and to consider its impact on the University. As Figure 1.1. below shows there were three core topics that I wished to research.

Figure 1.1.



The new sciences challenge the existing scientific tradition and are making a significant contribution to scientific thinking and understanding. Would they offer helpful new ways of interpreting and understanding the world of organisations as is implicit in the writings of Stacey, Wheatley, Merry and Nonaka? The New Directions programme provided a real life example of a programme of change activities that had been influenced by preliminary understandings of the new sciences. An investigation into the programme might provide some real life information and some answers. Out of these considerations of the three core topics in Figure 1.1. emerged the central question of this thesis.

> *What can we learn about organisational change and transformation from the New Directions Programme 1993 - 1996 and ideas and insights derived from the new sciences of chaos and complexity.*

This thesis begins with a description of the new sciences and some of their main ideas and theories. I would argue that without a good basic knowledge of chaos and complexity and some of the insights that they offer it would not be possible to understand their applications in organisations. For example, the terms 'chaos' and 'complexity' are used in everyday speech but their meaning in the new scientific sense is very different and much more complex and complicated.

The new sciences involve a broad spectrum of disciplines: biology, physics, mathematics, chemistry, computer science, meteorology, economics, and even the social and management sciences. Further, as Gleick (1993) explains, scientists have their own languages, for example, the language of the physicist is not always understandable by the biologist and vice versa. Thus to cover all the main theories and ideas presented a significant challenge. The solution was to refer to the work of several scientific writers who had become recognised for their work on interpreting the work of others researching in the field. For example, James Gleick's book on chaos (1993) describes the history and development of chaos and discusses the work of major contributors such as Lorenz, Feigenbaum and Mandelbrot. This is now considered by many to be the standard reference book on chaos.

It is not the aim of this thesis to assume the role of the expert scientific researcher and critique any of the theories. The ideas put forward are drawn from the mainstream of the new sciences and are well accepted within that realm. Thus I describe the new sciences and then in order to investigate their relevance outside the scientific arena, I put them to the test in a laboratory I understand, that is the organisation. The real life laboratory is the Open University.

Thus Chapter 2 of this thesis describes chaos theory and complexity science and their main themes by referring to several distinguished scientific writers. Gleick (1993) provides information on the basic tenets of chaos theory and explains the Butterfly Effect (sensitive dependence on initial conditions), fractals, attractors, notions of order and disorder, concepts of universality and flows. Lewin (1993) and Waldrop (1994) provide introductions to the many facets of complexity science. They draw not only on a wide range of scientific publications but also on interviews with many of the scientists whose work they describe. A more recent work by Coveney and Highfield (1995) adds further important data. These three books provide descriptions and explanations of the main theories and ideas of complexity science such as emergence, self organisation, complex adaptive systems and fresh interpretations of evolution. Biologists, Goodwin (1997) and Kauffman (1996) and mathematician Stewart (1997) provide information from their own research and that of others. Capra (1996), Merry (1995), Stacey (1996) and Wheatley (1994) also provide descriptions of many of the main attributes of the new sciences and they draw on a range of scientific research and writing.

In order to explore the importance of the ideas and theories arising from the new sciences it was important to consider the background against which they arose. Thus Chapter 3 describes the origins and development of the classical, scientific tradition founded by Galileo, Newton, Descartes and others. This established a mechanistic, linear view of the world which took a reductionist, cause and effect approach to science. Human beings were seen as machine like and the intellect was highly valued and the senses disregarded. In spite of challenges from the Romantics in the early 19th century and from quantum physics and relativity theory this century this world view continues to exert a very powerful influence on all aspects of life. Many early technologists and the founders of industrial society in the western world looked to science to provide ideas and models as to how to establish their new industries. This chapter also

seeks to ascertain how much ideas derived from the classical, scientific view still exist in today's organisations. Handy (1990, 1993), Morgan (1986) and others provide considerable evidence to support the view that the influence is still a powerful one.

The new sciences challenge many aspects of the existing paradigm and in so doing indirectly offer a challenge to the way organisations are structured and behave. If the new sciences provides us with explanations about how the world works then these explanations should be of value in the considering how organisations work. Empirical data provided by this thesis should show whether or not this is so and would therefore add or detract from the new sciences literature on organisations.

Many organisations and their managers assume that change can be managed and controlled in an orderly fashion until the new desired state is arrived at. This is a mechanistic, linear approach to change which assumes that equilibrium can be achieved and maintained in a rapidly changing world. This approach to change is typified by the use of deliberate strategies as described by Mintzberg and Waters (1989). Writers on strategic management like Mintzberg and Waters and Quinn, challenged this traditional approach and have contributed to major developments in current thinking on strategic management. In spite of this, however, traditional thinking on change management and the old mindset still prevail. This is exposed by Cooksey and Gates (1995), Durcan et al (1993), Morgan (1986), Stacey (1992) and others.

This thesis builds upon the notions and ideas on change that draw on both ancient Western and Eastern philosophies and the new sciences and are used by writers such as Capra (1983), Handy (1990, 1994), Morgan (1986), Stacey (1992,1996), Wheatley (1994) and others. In so doing it aims to reinforce emerging understanding on the reality of change in organisations and finally

make the break with ways of thinking and doing derived from the classical scientific paradigm.

In order to understand and describe the changes explored in the case study I have referred also in Chapter 4 to writers such as Morgan (1986), Merry (1995) and Nonaka (1988) and their interpretations of the different kinds of change. The importance of learning and the many forms it may take powerfully underpins the writings of these definitions of change and this led to considering the work of Dale (1994) and Senge (1992, 1994) on learning organisations.

Morgan (1986) contends that writing on the management of change falls into two main categories. One is a descriptive approach which attempts to identify and list manifestations of change as discrete events. The second approach attempts to describe change via abstract concepts such as amounts of uncertainty or turbulence. Morgan considers that these approaches succeed in describing and classifying the nature of change but fail to explain its underlying dynamic. In describing the changes that took place at the University between 1993 and 1996 I have attempted to blend the two approaches Morgan describes and explain them via understandings of change drawn from the new sciences. Thus I describe both apparent and unapparent changes. In other words, the discrete, observable events and waves of change or turbulence, but also those less observable events and flows which are part of the human response and often emerge only over time. In so doing I believe I have reinforced newer understanding of the notion of change. Further, some explanations regarding the basic dynamics of change in organisations are put forward.

Having considered the mainstream literature on managing change in organisations Chapter 5 reviews and discusses the works of those writers on organisations who draw on the new sciences for their ideas and insights. They

provide the theoretical base to which this thesis aims to add. It describes in general terms some of these new ideas and approaches and how they may be used to achieve organisational transformation and renewal. It then considers how the different features such as the Butterfly Effect, fractals, the edge of chaos, and self organising principles may be used in renewing organisations.

The number of writers contributing to this literature at the time I began this thesis was few. Nonaka (1988) was one of the first to explore how ideas from chaos could be used in organisations through his observations of transformation in Japanese companies. He draws heavily on the work of Prigogine and his work on dissipative structures. Wheatley (1994) and McMaster (1996) write on their research and experiences in the USA. Merry (1995), an Israeli by birth, draws on long life experience and extensive readings. Stacey (1992, 1993, 1996) who draws on extensive reading (including Prigogine, Kauffman, Gell-Mann and Waldrop) and his own research in a range of organisations, is to date the only significant writer in this area in the UK. In my view Stacey provides the most extensive and comprehensive insights and interpretations of the uses of the new sciences in organisations. I use him and the above writers and others to describe the extent of the literature on organisational transformation derived from the new sciences.

Further, their work provides valuable models and reference points. Of all these writers I have used Stacey most when interpreting some of the ways in which chaos and complexity could be used in organisations. His work provides especially valuable signposts and yardsticks against which to measure much of my data. Stacey's (1996) 9 point complexity theory of organisation provides a theoretical framework within which to examine and consider the case study data in the light of complexity principles. This thesis explores these principles, in some instances verifying them, and in other cases reinforcing and adding to them. Further, Stacey's (1992, 1993) 8 steps whereby 'order is created out of

chaos' is used in particular to benchmark and consider the New Directions activities. Stacey's work on self organising systems and especially self organising teams is also used as a theoretical framework within which to consider the case study data on teams and team working.

Undertaking this thesis has presented me with many challenges, not least my proximity to the research topic. First of all I work at the organisation which provides the context for my research. Also, I was involved in the subject of my case study, the New Directions programme, from the very beginning because of my job as head of training and development. Later I became actively involved in the programme not only because of my formal role but also as an individual who enthusiastically supported it. I knew something of the new sciences and was familiar with some of Stacey's work on their application in organisations. Further, I had also deliberately tried to introduce some ideas drawn from chaos and complexity into the New Directions programme.

My close personal involvement obviously colours my approach. However, I have tried to overcome this by using extensive triangulation to check my findings. I acknowledge that inevitably some of my own attitudes will seep through but at the same time it is important to recognise that there is no such thing as a truly objective observer. I am, however, able to declare the source of some of my biases. On the plus side my situation made it easy to approach people for interviews and workshops and to obtain secondary data.

In conducting the case study I have drawn on data collected from interviews with staff who were active in the New Directions programme and others who were participants. I also used two workshops and two questionnaires to generate further data. I had complete access to the whole archive on the programme, and other sources of secondary data including the University's in house newspaper, *Open House.* The Institute for Employment Studies carried out a

study on New Directions in 1996 and I had their report and other documents. This was a particularly valuable source of evidence as it came from an external perspective and an independent study. Chapter 6 discusses the methods used to collect the data, how they were implemented and any associated issues.

Chapter 7 provides a brief history of the Open University. It describes some of its main features, including how it was set up, its structure, purpose and culture and draws on a range of internal publications and the observations of Perry (1976) and Costello (1992). Further, it describes the financial, environmental and strategic planning situation in early 1993. Thus it establishes the context out of which the New Directions programme emerged and suggests the culture and values of the institution under study. It also describes in some detail the story of the programme on a chronological basis, describing the different events as they unfolded. This provides the factual evidence on the programme and sets the stage for the case study.

The New Directions Programme had originally started out as a series of consultative workshops led by the Pro Vice Chancellor, Strategy. This unexpectedly developed into a complex and far reaching change process which extended over four years. How effective had it been as an organisational change process and had understandings of the new sciences in any way influenced the programme and events? The programme set up two teams of volunteers who were particularly successful in organising and delivering on their projects. What was the essential nature of these teams and did they have any connections with ideas from the new sciences? Why had the team members volunteered to participate in such a specific way in the change process and what had motivated and enthused them to do so? These and other key questions I sought to answer via an analysis of the case study data.

Analysis of the data, described in Chapters 8 and 9, demonstrates that

approaches based on ideas derived from the new sciences are relevant and useful in organisational change processes. It is possible by studying the New Directions initiative to identify the role that ideas emerging from the new sciences contributed to the change process. Further, this thesis demonstrates that approaches to organisational change derived from the new sciences can be operationalised and practically useful.

All change interventions can provoke hostile responses. This thesis shows that a change process based on innovative approaches and the new sciences needs not only operational support but also political support. Without support from those who are powerful at the top of the organisation the process will be short lived. Further, continued powerful support and the right environment are needed if the process is not to slow down and fade away. Using ideas from the new sciences will only be relevant in organisations which are prepared to provide the right climate and environment to support such a process. They will need to be prepared to cut across hierarchical boundaries, to allow all staff to challenge and debate strategic priorities and to experiment with new ideas, and to genuinely listen and respond to the outcomes. They will also need to be prepared to set up empowered teams of volunteers to tackle change projects on their own terms.

Human systems have a real capacity for self organisation. This thesis demonstrates that given the right environment a spontaneous, self organising dynamic can emerge within an organisation. This will stimulate and energise a range of changes. It can influence policy making and strategic planning by filtering into the senior management processes. By setting up self organising teams specific change projects can be accomplished or issues addressed. These are all observable changes. Most significantly the emergence of self organisation within human groups creates opportunities for learning both theoretical and experiential. This learning may be simple or first level such as

an acquisition of new skills or it may be complex or adaptive learning such that mindsets are moved and people see the world afresh. These changes within an individual contribute significantly to the flow of change within an organisation although they may only be observable over time. If sufficient learning takes place within a self organising system then it becomes a complex adaptive system. This thesis argues that these systems are key to organisational survival and renewal.

To summarise, this thesis was theoretically informed by a literature review which considered the new sciences, the classical scientific tradition and the influence of scientific thinking, especially traditional thinking, on organisations. It included some of the management literature on strategic change theories and current notions of change. This led onto considerations of some of the newer approaches to change in organisations and then ideas on organisational transformation derived from the new sciences. Finally, it drew both on literature and internal documents and publications to describe the Open University and set the scene for the New Directions programme, the subject of the case study. The case study provided a detailed and very rich account of a complex and innovative change process which spanned a four year period and analysis of the data enabled me to say with hindsight that the practice and the process of the New Directions programme were indeed influenced by ideas derived from the new sciences. Analysis of the evidence also provided significant evidence to support notions of the importance of learning in the change process. It is learning and the adaptive dynamics of the human response to change that provide a link between the literature on the learning organisation and the literature based on the new sciences. Further, the empirical contribution of this thesis in synthesis with the theoretical considerations enabled me to suggest a new approach to strategic change - a 'transition' approach. The transition approach to strategy is a model which is further developed in Chapter 10. It is a hybrid strategy which draws on influences both from classical science and

traditional ideas on organisations and from the new sciences and their perspective on organisational life. This strategic approach allows the fusion of both the old and the new as a integrative approach to the future evolution of organisations and their management. Further, it offers a means of better explaining change processes in more traditional organisations like the OU. These are organisations that although essentially deeply rooted in conventional strategic approaches at the same time are willing to experiment with one or two more radical and innovative ones.

In conclusion I would argue that we can learn a great deal about change and transformation in organisations from studying the New Directions Programme at the Open University and ideas and insights derived from the new sciences of chaos and complexity and the management literature that draws upon them.

* Ideas from the new sciences are relevant to organisational change theory and do have significant and useful applications when considering change and transformation in organisations.

* Understandings of these ideas support some of the newer ideas and approaches to change, especially those concerned with learning and the value of the human contribution to the change process.

* I have used contributions such as Stacey's 9 point complexity theory of organisation as a theoretical framework for considering organisation change.

* In answering this core question I have built on Stacey's interpretations by fleshing out the emotional dimensions of the human response to the change process and by contributing to definitions of team working.

* Overall, this thesis adds to ideas about the dynamics of change processes in organisations and in so doing adds to some of the newer interpretations of change in organisations and self organising principles in particular.

* This thesis adds not only to the theory but to the practice by having described how to undertake a change process working with people and ideas from the new sciences.

* This thesis suggests that a democratic and involving approach to strategic practice can lead to the emergence of 'grass roots' or 'democratic' strategic action plans which can make a valuable contribution to an organisation's change process.

* This thesis proposes a new theoretical approach to strategic change, a 'transition' strategy. This seeks to build an enabling bridge between organisational thinking and practice influenced by the old world view, dominated by classical science and the new thinking on organisations emerging from a new world view, influenced by the new sciences.

CHAPTER 2

THE NEW SCIENCES OF CHAOS AND COMPLEXITY

2.1. Introduction

As this thesis aims to discuss change and transformation in organisations in relation to the new sciences of chaos and complexity it is important that the scientific context is clearly explained and described. Thus this chapter provides in Sections 2. 2., 2.3. and 2.4. a definition of chaos science, a brief history of its development and descriptions of its main features. Sections 2.5, 2.6 and 2.7. provide a definition of complexity science, a brief history of its development and descriptions of its main features. The chapter uses a range of secondary source literature.

The descriptions and definitions are not exhaustive, nor are they meant to be as their purpose is not a scientific one. They are provided on the basis that an understanding of the scientific background is necessary if one is to explore, with any degree of confidence, the insights they may offer in the organisational and management context. Additionally, it assists this thesis in the development of interpretations firmly rooted in the science itself that will not have not been shaded by the views of others. My reading to date has led me to believe that too often theories are moulded to suit applications and subsequently all trace of original theory or concept is forgotten. Thus by understanding the basic tenets of chaos and complexity it should be possible to question the validity of any proposals by writers on organisational theory and practice when they draw on them in support of their ideas.

2.2. Chaos - towards a Definition.

Chaos theory or chaos science is defined in a number of ways. One very succinct definition is that 'WHERE CHAOS BEGINS, classical science stops' (Gleick 1993). Chaos researchers set out to explore the non linear nature of the world, for them the classical laws of science failed to provide all the answers and too often ignored existing if apparently minor phenomena (Gleick 1993, Merry 1995). Lovelock (1989) observes that:

> 'No one doubts that it was plain, honest reductionist science that allowed us to unlock so many of the secrets of the Universe... But clear, strong, and powerful though it may be, it is not enough by itself to explain the facts of life.'

The traditional, mechanistic view of the world encouraged scientists to search for 'fixed theories and linear methods' whereas the new scientific approach is interested in the 'chaotic, paradoxical, and transient nature of order and disorder' (Morgan 1993). The emergence of the principles of chaos science has had a profound effect on the traditional linear view of the world and many long held assumptions have been challenged and found wanting (Wheatley 1994, Stewart 1997). Merry (1995) quotes Professor T. R. Young of the Institute of Advanced Studies in Sociology in Michigan who echoes Gleick:

> 'Where chaos begins, normal science ends.... Chaos Theory is the theory of postmodern society par excellence.'

Chaos scientists study nature's eccentricities. They research into the strange ebb and flow of wildlife populations, of epidemics of disease, of fluctuations in weather systems, and in the sometimes erratic behaviour of the heart and the brain (Gleick 1993, Merry 1995). Paradoxically, this apparent 'chaos' is not an aberration in the planned scheme of things but reflects deeper more complex

patterns and swirls of order than had previously been expected and understood (Capra 1996, Gleick 1993, Wheatley 1994). Some physicists describe chaos as a 'science of process rather than state, of becoming rather than being' (Gleick 1993).

Chaos or chaos science may be defined by its newness. It may be a science that seeks to explain phenomena that have always existed but its focus upon them is new and its multidisciplinary approach breaks with a western scientific tradition that had become increasingly reductionist (Gleick 1993, Wheatley 1994). It is new too because most of its significant explanations and theories were first mooted in the last thirty years and only recently in the last decade have articles on chaos been published to any great extent in scientific journals (Merry 1995).

The Concise Oxford Dictionary (1976) defines chaos as a noun meaning ' formless primordial matter; utter confusion'. In Brewer's *Dictionary of Phrase and Fable* (1978) the reference to chaos reads:

> 'Chaos (*kaos*). Confusion: that confused mass of elemental substances supposed to have existed before God reduced creation into order. The poet Hesiod is the first extant writer that speaks of it.
> "Light, uncollected, through the chaos urged
> Its infant way, nor order yet had drawn
> His lovely train from out the dubious gloom."
> *Thomson: Autumn, 732-4.'*

Mcnamara (1993a) discusses the classical meaning of 'chaos' and its associations with ancient world definitions of darkness and disorder. Thus in modern usage it resonates strongly with earlier notions of breakdown, collapse

and the dark side of life. Coveney and Highfield (1995) refer to the 'ambivalent nature' of the word 'chaos'. They point out that on an everyday level people tend to think of chaos as some kind of randomness in contrast to order. Further, there is the chaos or upheaval of everyday life and then the chaotic systems explored by chaos science (Merry 1995). Chaos science gave the everyday term 'chaos' a new scientific meaning (Capra 1996) and in its scientific sense chaos is *not* about confusion and disorder (Stacey 1992). The scientific use of the term describes processes that appear to be random but in fact are not. However, even within the scientific community it is not always recognised that 'chaotic dynamics is actually exquisitely organized' (Coveney and Highfield 1995).

Chaos is about understanding and explaining the apparent disorder that exists in the universe and in so doing has imbued the term chaos with a whole new range of meanings and shades of meaning that have more to do with order and understanding than the old concepts of disorder and ignorance. Chaos is viewed increasingly as a transitory state that embraces both order and disorder (Macnamara 1993a). It has challenged the prevalent view of how the world works and shown new laws and 'even new types of laws' (Stewart 1997). Further, the study of chaos has led to better understanding of the nature of change and transformation and of the relationship between order and chaos (Wheatley 1994).

Stewart (1997) describes chaos theory as an exciting new area of mathematics concerned with non linear dynamics. But chaos science is multidisciplinary and embraces a wide range of disciplines: physics, biology, meteorology, medicine, systems, chemistry *and* mathematics. It is holistic in nature and approach and 'a science of the global nature of systems' (Gleick 1993). Chaos researchers search for explanations and patterns that connect rather than divide, that link together and create new approaches, that encourage new ways of viewing the

world that help us to better understand the nature of our complex universe.

Chaos has been defined as a subset of complexity science. It was the discovery of chaos theory which stimulated further explorations into the behaviour of complex systems and non linear dynamics which are the hallmarks of complexity (Lewin 1993). This development is described in detail in the sections on complexity.

2.3. Chaos - A Brief History

During the 1970s a number of scientists, from a wide range of disciplines, became uneasy and sometimes dissatisfied with existing scientific explanations which often ignored small aberrations or so called trivial data in order to maintain a main theory or law. Galileo, it is well known, had to disregard the nonlinear effects of friction and air resistance to achieve his 'neat results' (Gleick 1993). Chaos researchers were fascinated by the turbulent and unpredictable nature of the universe. By the 1980s, chaos had become a fast growing movement that had created its own range of special techniques using computers and specialised graphics with a new language of its own (Gleick 1993).

Figure 2.1. on the next page shows the major concepts of chaos science and some of the key researchers associated with them.

A major landmark in the emergence of the new science was the proposition of the 'Butterfly Effect' (Sensitive Dependence on Initial Conditions). This phrase was coined by Edward Lorenz, working in the 1960s, who discovered that small variables in weather conditions could have a major impact on the developing weather patterns (Mcnamara 1993a, Gleick 1993, Capra 1996).

Figure 2.1. Key Features of the Development of Chaos.

Period	Key Concept / discovery	Discipline	Researcher
1960s	Butterfly Effect / Sensitive Dependence on Initial Conditions	Meteorology	Edward Lorenz
	Strange Attractors	Mathematics & Physics Mathematics Meteorology	David Ruelle Floris Takens Edward Lorenz
1970s	Chaotic properties of dynamical systems	Mathematics	Stephen Smale
	Notions of order and disorder	Mathematics	James Yorke
	Order within chaos	Biology	Robert May
	Fractals	Mathematics	Benoit Mandelbrot
	Universality	Physics	Mitchell Feigenbaum
	Flow	Physics	Albert Libchaber
1980s	Edge of Chaos	Anthropology & Computing	Chris Langton

Lorenz's discovery posed a significant challenge to theories of predictability and 'sent shock waves throught the scientific community' (Capra 1996). It is one of the main tenets of chaos.

In the 1960s and 70s the study of the behaviour of pendulums by a number of physicists led to further discoveries, Gleick (1993) comments:

> 'Those studying chaotic dynamics discovered that the disorderly behavior of simple systems acted as creative process. It generated complexity: richly organized patterns, sometimes stable and sometimes unstable, sometimes finite sometimes infinite, but always with the fascination of living things'.

Stephen Smale, went back to Henri Poincare, the great French mathematician, building on his work on the qualitative analysis of dynamic systems 'identifying the system's attractors and basins of attraction, and classifying them in terms of

their topological characteristics' (Capra 1996). By the 1970s Smale's work had become more widely recognised as opening up a whole new branch of mathematics.

James Yorke is credited by Gleick (1993) with coining the term 'the science of chaos.' Robert May's work on fish populations demonstrated that whatever changes took place, there emerges an underlying pattern of order as the population changes repeat themselves over three and seven year cycles. There is order within chaos. May (1976) wrote:

> 'Not only in research, but also in the everyday world of politics and economics, we would all be better off if more people realised that simple nonlinear systems do not necessarily possess simple dynamical properties.'

May argued that the standard scientific education misled scientists about the overwhelming nonlinearity of the world. May's work showed how a logistic equation could be 'sensitive to tiny differences in starting values' and reaffirmed the importance of 'sensitive dependence on initial conditions' discovered by Lorenz (Mcnamara 1993a).

Benoit Mandelbrot is credited with devising a new form of geometry - fractal geometry. Fractals are everywhere around us in the natural world but until Mandelbrot devised his new geometry there was no means of 'understanding them or how they were created' (Wheatley 1994). His work was to significantly influence the new generation of mathematicians who were working on chaos theory (Capra 1996).

Mitchell Feigenbaum, who spent a great deal of his time walking, flying among the clouds and pondering over the nature of light and colour, developed the

concept of 'universality' (Gleick 1993). Feigenbaum demonstrated that:

> 'universality was not just qualitative, it was quantitative; not just structural, but metrical. It extended not just to patterns but to precise numbers' (Gleick 1993).

In the 1960s and 1970s most scientists thought very differently to today when they sought to interpret the world around them. Now an alternative set of ideas exists, a new way of viewing the world, that has arisen out of the serious, painstaking, and often inspired, research of the early chaos pioneers. Chaos encouraged holistic thinking in science and it brought together a whole range of disciplines that were heading down their own exclusive paths. Furthermore, as Gleick (1993) points out the discoveries of the chaos scientists were not only new but were often the 'belated understanding of old ideas'. Others like Einstein, Poincare and Maxwell had seen many of the 'pieces of the puzzle' but these had then been forgotten.

It was the development of computers and computer technology which enabled scientists to solve complex dynamical equations (Stewart 1997) and to unravel some of the mysteries of chaos which had been observed by an earlier generation (Coveney and Highfield 1995, Wheatley 1994). Thus enabled by developments in computer technology a set of concepts arose which are summarised in Figure 2.1.

2.4. Chaos - Main Themes and Theories

2.4.1. Sensitive Dependence on Initial Conditions - The Butterfly Effect

Edward Lorenz is credited with the discovery of the phenomena of 'sensitive

dependence on initial conditions' although the French mathematician, Poincare, at the end of the last century had pointed out the existence of such effects in dynamical systems, but his work in this field had been put to one side (Wheatley 1994, Coveney and Highfield 1995). In the 1960s, Lorenz, created a simple computer programme that simulated weather patterns. One day he took a shortcut and instead of keying in the sequence that started the cycle to 6 decimal places he started it up using only three. He had started up the computer assuming that the difference was inconsequential. He assumed too that a small numerical error was like a small puff of wind, that it would have no major impact on the overall, large scale patterns of the weather. However, as the computer printed out it produced a graph that started from nearly the same point as the 'regular' graph but after a time began to diverge from the original pattern until all further resemblance disappeared. Small changes had produced significant differences (Gleick 1993, Macnamara 1993a, Merry 1995). The small perturbations in the behaviour of the weather were what made the weather systems so changeable, unpredictable and complex. From then on Lorenz believed that long range weather forecasting was impossible and that '*any* physical system that behaved non periodically would be unpredictable' Lorenz (quoted in Gleick 1993). His discovery later became known as the Butterfly Effect as a result of the publication of his paper 'Predictability: Does the Flap of a Butterfly's Wings in Brazil Set Off a Tornado in Texas?'

The Butterfly Effect demonstrates that all systems are exceptionally sensitive to their initial or starting conditions and that small variations over a period of time can lead to major changes in a non linear system. Until Lorenz's work everyone had believed that small differences averaged out and were of no real significance (Wheatley 1994). The Butterfly Effect showed that small things mattered, further, it demonstrated the near impossibility of predicting the long term outcomes of a series of events with any real degree of accuracy (Gleick 1993, Coveney and Highfield 1995, Kauffman, 1996).

But, as Kauffman (1996) points out it is important to realise that because a system is not predictable in the long term it does not mean that it is impossible to understand or even to explain. Also that it should be possible to 'build theories that seek to explain the generic properties' of the system without necessarily knowing the 'details.'

Paradoxically, complex dynamical systems, like the weather systems, studied by Lorenz are not, as a whole, unstable although they exhibit unstable behaviours (Gleick 1993). Gleick here refers to an important concept that runs through notions of chaos in dynamical systems. The system may appear to be behaving erratically and unpredictably at first glance but observation over a longer time period or on a wider panorama or visual scale will show patterns emerging that echo each other and weave around to form an unexpectedly stable tapestry of behaviours. It may well be a bizarre tapestry of strange and unusual shapes but there will be an overall pattern that emerges and unites it as a stable whole. This theme occurs again and again as one explores different aspects of chaos theory and reflects the notions of patterning, scaling and universality which are discussed later.

The Butterfly Effect challenges traditional ideas of cause and effect and concepts of predictability. As a result many long held scientific notions have had to be reviewed (Macnamara 1993a,Wheatley 1994). Many of the insights offered by the Butterfly Effect are now being researched in a wide range of disciplines. It also has major implications for notions of long term planning and the feasibility, or indeed, the wisdom, of commitment to long term strategies (Merry 1995).

2.4.2. Strange Attractors

Lorenz is also renowned for what is known as the 'Lorenz Attractor' sometimes known as the 'Butterfly Attractor'. This is an example of the 'strange attractor' (a term coined by David Ruelle and Floris Takens). A strange attractor is a way of describing and visualising in geometric form the behaviour of a dynamical system over a period of time. Wheatley (1994) states that a strange attractor is:

> 'a basin of attraction, an area displayed in computer generated phase space that the system is magnetically drawn into, pulling the system into a visible shape.'

Although a dynamical system may appear to be chaotic it does have a shape and never 'exceeds the bounds of its strange attractor' (Wheatley 1994). Coveney and Highfield (1995) describe how the Lorenz Attractor represents the climate and though, for example, the British weather may vary considerably, and is famously unpredictable, it always exists within 'a certain repertoire of possibilities, excluding monsoons or months without rain.'

The potential for chaos resides within every system - but chaos when it emerges never 'exceeds the bounds of its strange attractor' (Wheatley 1994). The shape of a strange attractor conveys 'pure disorder' yet no point or pattern of points is ever repeated - thus a new kind of order emerges (Gleick 1993). Chaotic behaviour is not random and unrestrained it is 'deterministic and patterned' (Capra 1996). The strange attractor weaves a range of complex, exotic patterns, each one different, yet the whole is restricted to a limited range (Merry 1995). This is just one kind of demonstration of the 'patterned order within chaos' (Merry 1994).

A strange attractor has two distinct features. Firstly, it shows great sensitivity to the initial conditions. Secondly, it has fractal properties (Coveney and Highfield 1995, Stewart 1997). The nature of fractals is discussed in the next section.

James Lovelock (1989) described the ubiquitousness of strange attractors and the many forms they may take:

> 'Attractors can be lines, planes, or solids as well as points, and are the places where systems tend to settle to rest....Phenomena of the natural world- such as weather, disease, and ecosystem failures - are characterized by the presence of these strange attractors in the clockwork of their mathematics, lurking like time bombs as harbingers of instability, cyclical fluctuations, and just plain chaos.

The discovery of the strange attractor moving across the computer screen meant that scientists were able to to see 'a system's movement in more dimensions than had been possible previously.' Wheatley (1994).

2.4.3. Fractals

The term 'fractal' was coined by Mandelbrot to describe a new type of geometry, one that concerned irregular shapes that repeated themselves up and down the scales of length (Coveney and Highfield 1995). Conventional, Euclidian geometry described simple shapes, straight lines and smooth circles. It was not a geometry that could describe the natural world (Gleick 1993, Merry 1995). Mandelbrot devised a universal geometry that could capture the amazing diversity of shapes in the living world. Fractal geometry is able to describe all the many uneven, irregular aspects of nature ranging from mountain tops and clouds to living things such as trees and the nervous system (Gleick 1993, Merry 1995). Fractal shapes are everywhere in nature, they are found in coastline formations and in the shape of vegetables (Coveney and Highfield 1995).

The property whereby fractal objects repeat themselves on different size scales is known as self similarity (Gleick 1993). Coveney and Highfield (1995) refer to self similarity as this 'property of endlessly manifesting a motif within a motif within a motif'. Thus, they suggest, if one looks at the shape of the edge of a clover leaf one will discover that the edge itself contains still smaller clover type shapes.

Wheatley (1994) points out that fractals demonstrate the futility of trying to measure everything by breaking things down into their constituent parts in traditional, quantitative, reductionist fashion.

Traditionally tend to think of things by their size and by how long they last and we tidy them up into neat definitions of size and time scale (Gleick 1993). If we use fractal geometry, however, then we see things differently - on different scales. Gleick cites the example of a hurricane which in one way is a violent storm and a particular atmospheric event. However, seen in fractal terms it is part of a vast continuum that extends from gusts of air on a city street to the enormous cyclonic systems that race across the planet.

Fractal principles give us valuable insights into how nature creates our world using a few simple guidelines (Wheatley 1994) She refers to the way a fern is built up from a few basic rules. It starts with a basic shape and builds up into what we recognize as a fern by constantly repeating this pattern on a series of different size scales. The blood circulatory system in the body with its extensive web of intertwining veins and arteries all branching out in fractal patterns is an example of a fractal structure (Gleick 1993).

Wheatley (1994) notes that there is no 'definitive measurement' in fractal geometry and that what matters is the quality of the system. Fractals are about

qualitative measurement.

Scientists from a range of disciplines are now using fractals to describe the appearance and properties of a wide range of objects and materials including polymers, metals, and the human heart (Merry 1995). Some organisations too, are using fractal principles. They are attempting to stand back from studying separate aspects and are focussing on overall shapes, themes and patterns (Wheatley 1994). Business analysts are able to use fractals to study the patterns in behaviour of the stock market (Wheatley 1994, Mandelbrot 1999).

2.4.4. Order within Chaos

Gleick (1993) describes the work of May on fish populations and the computer programme he developed to simulate the different changes in populations sizes. May investigated hundreds of different values, setting feedback loops in motion and watching to see where and whether the numbers would settle to a fixed point. It was as if he were able to study his own fish pond. Like Lorenz he created a bifurcation diagram which plotted the behaviour of the system at different parameters. It showed clearly that when the parameters are low the fish population becomes extinct. As the parameter rises so does the equilibrium of the population. Then as it rises further the equilibrium splits into two and the population starts to alternate between two different levels. The bifurcations become faster and faster then the system turns chaotic and the population visits infinitely many different values. One would think that in the chaotic period the changes were completely random but in fact in the middle of this chaos stable cycles return. The pattern of changing population repeats itself on a three or a seven year cycle. The computer graph showed 'windows of order' within the chaotic sector. Also when portions of these parts of the graph are magnified they turn out to resemble the whole diagram - a fractal pattern.

Pockets of order exist within the most chaotic systems. Coveney & Highfield (1995) show how a simple linear system in a bifurcation cascade (also known as period doubling) moves into chaos. The further the system moves from equilibrium the more chaos one would expect to see. However, if on close inspection one sees that there are are 'islands ' or 'windows' of regularity 'between regimes of chaos and vice versa'. Lovelock (1989) refers to the ecologist C. S. Holling, who observes that the stability of all large scale ecosystems depends on the existence of internal chaotic stabilities. The existence of order within chaos is found everywhere in nature and is further explored by those studying complexity (Coveney and Highfield 1995).

2.4.5. The Edge of Chaos

Waldrop (1994) describes how complex living systems appear to have the ability to balance order and chaos - this point of balance is known as 'the edge of chaos'. It is the place where the parts of a system never quite lock into place, and yet never quite break up, either. Kauffman (1996) uses water as an analogy to describe the edge of chaos. Water exists as solid ice, liquid water and as gaseous steam. Kauffman's hypothesis is that a living system that is 'too deeply into the frozen ordered regime' would be too rigid to undertake the complex activities necessary to sustain and develop life. If they are too far into the gaseous chaotic regime then they would 'not be orderly enough'. Thus a 'kind of liquid regime located in the region between order and chaos' offers the most best possibilities for the successful development of complex activities. This is the edge of chaos.

Coveney and Highfield (1995) describe Blaine Cole's work using computer simulations of ant colonies to provide some evidence for the balance between order and chaos and the existence of the edge of chaos. Ants as individuals behave in a chaotic fashion. They rush about, have a rest and so on, in a

pattern of behaviour that 'rattles around' like a strange attractor. However, as a colony ants 'show quite rhythmic behavior.' Other experimental studies have showed that the pattern of their behaviour is affected by population density. Brian Goodwin (1997) comments on Cole's work:

> 'When the density of a colony reaches a critical value in the model, chaos turns into order and rhythmic patterns emerge over the colony as a whole.'

Goodwin explains that it appears that ants may adjust their colony density such that they are near the edge of chaos. This he observes is a good position to be in when the world is always changing. This is because one can always experiment with different 'patterns of order' and try them out.

> 'What you don't want to do is get stuck in *one* state of order, which is bound to become obsolete sooner or later (remember the dinosaurs, or the British Empire, or IBM before the shake-up) So complex systems that can evolve will always be near the edge of chaos, poised for that creative step into emergent novelty that is the essence of the evolutionary process. At least that is the conjecture.' (Goodwin in Coveney and Highfield 1995)

Kauffman (1996) argues that complex systems exist on or near the edge of chaos because it positions them so that they may take advantage of either stability or flexibility and that the process of evolution takes them there.

Roger Lewin (1993) refers to the work of Chris Langton from the Santa Fe Institute. Langton describes how cell membranes are poised between a solid and a liquid state and that the slightest change in their composition can produce significant and very useful changes.

> 'the edge of chaos is where information gets its foot in the door in the physical world, where it gets the upper hand over energy. Being at a transition point between order and chaos not only buys you exquisite control - small input / big change - but it also buys you the possibility that information processing can become an important part of the dynamics of the system.' Langton (quoted in Lewin 1993)

2.4.6. Universality and Scaling

The concept of universality is a feature of chaos theory and is applicable to many living systems. Universality means that different systems behave in identical ways (Gleick 1993). Merry (1995) refers to Feigenbaum and his work on transition points, that is when a system moves out of order into chaos. While he was working on transition points, in a number of different systems, Feigenbaum discovered that these very different systems would behave in a similar way when becoming chaotic, in other words, that they behaved in a universal fashion.

Gilmore (quoted in Gleick 1993) described Feigenbaum's concept of universality thus: 'It was a very happy and shocking discovery that there were structures in nonlinear systems that are always the same if you looked at then the right way.' But how do you look in the right way? The answer is, as Feigenbaum in an interview with Gleick (1993) states:

> 'One has to look for different ways. One has to look for scaling structures - how do big details relate to little details. You look at fluid disturbances, complicated structures in which the complexity

> has come about by a persistent process...The process doesn't care where it is, and moreover it doesn't care how long it's been going. The only things that can ever be universal, in a sense, are scaling things.'

There is an obvious relationship between fractal geometry and the concept of scaling - fractal scaling. Fractal scaling is about repetition of pattern or shape up and down a scale of size. Scaling is also about the relationship between things. It is about the interplay between colour, shape, texture, dimension (Gleick 1993). Universality and scaling are two themes that occur again and again in discussions of chaos theory.

2.4.7. Rhythms, Flows and Patterns

The natural world is full of rhythms and rhythmic cycles and universal patterning (Stewart 1997). Patterns take many forms and appear on different scales (Gleick 1993). Waldrop (1994) notes that the early chaos scientists discovered that even very simple systems were capable of producing amazingly rich patterns of behaviour.

> 'Nature forms patterns. Some are orderly in space but disorderly in time, others are orderly in time but disorderly in space. Some patterns are fractal, exhibiting structures self-similar in scale. Others give rise to steady states or oscillating ones.' (Gleick 1993)

Many of the patterns in nature are fractal repeating themselves over and over on different size scales. They may be seen, for example, in the design of a fern or the circulatory system in humans (Gleick 1993, Wheatley 1994).

Libchaber was responsible for the development of the concept of flow. Gleick (1993) writes that Libchaber 'had a feeling for the abstract, ill-defined, ghostly thing called *flow*. Flow was shape plus change, motion plus form.' As far as Libchaber was concerned flow was universal.

> 'If you think of a flow, you can think of a flow in many ways, flow in economics or a flow in history. First it may be laminar, then bifurcating to a more complicated state, perhaps with oscillations. Then it may be chaotic.' Libchaber (to Gleick 1993).

Theodor Schwenk, the philosopher, studied the flow of water and described natural river flows as composed of complex strands which are not really individual strands of water but 'whole surfaces, interweaving spatially and flowing past each other' (Schwenk quoted in Gleick 1993). Gleick (1993) refers to the universality of flow and how one may observe it everywhere in the 'rolling of eddies, the unfurling of ferns, the creasing of mountain ranges'.

2.5. Complexity Science - towards a Definition

Complexity is a science that is both very new and very wide ranging so that is difficult to define it, or even to know where its boundaries begin and end (Waldrop 1994). Merry (1995) refers to Professor Daniel L. Stein of the Santa Fe Institute who writes: 'Complexity is almost a theological concept; many people talk about it but nobody knows what "it" really is.' Complexity science or complexity theory is sometimes referred to as the 'complexity sciences'. This latter recognises its interdisciplinary applications and hints at its all embracing nature. It is its many applications that makes a neat, concise yet apposite, definition difficult.

Stacey (1996a) defines complexity science as the study of the basic properties of 'nonlinear feedback networks, or complex adaptive systems'. Stacey (1996) further describes 'adaptive' as denoting that such systems change in response to learning, using double-loop, rather than single-loop learning. In other words, complexity science studies complex systems with 'huge numbers of agents and rules who double-loop learn to change the rules and through interaction with each other create emergent futures'. More simply Stacey (1996) defines complexity theory as the 'dynamics of adaptive systems'.

Another simple definition is provided by Simon Caulkin (1995) who writes that essentially the science of complexity is about understanding self-organising systems. These are made up of many interacting parts which create patterns that become increasingly more and more complex.

Waldrop (1994) defines complexity as:

> 'a class of behaviors in which the components of the system never quite lock into place, yet never quite dissolve into turbulence, either. These are systems that can be organised to perform complex computations, to react to the world, to be spontaneous, adaptive and alive.'

Lewin (1993) quotes Chris Langton from the Santa Fe Institute, who describes complexity science as a science which teaches us that: 'the complexity we see in the world is the result of underlying simplicity.' This simplicity he ascribes to two things - the underlying creativity of simple systems and the complex patterns which these simple systems are able to create. Complexity studies attempts to understand these patterns and to create simple models which explain the creativity of the systems.

Stewart (1997) refers to the central theme of complexity as one where the 'large-scale simplicities emerge from the complex interactions of large numbers of components'.

Complexity science is concerned with the constantly transforming nature of the world. A world in which species evolving, flourishing and dying out represents the natural order of things (Waldrop 1994).

Coveney and Highfield (1995) focus on the holistic nature of complexity. They describe it as a new science that is attempting to understand why the whole universe is greater than the sum of its parts and in so doing discover the 'divine order' that exists in 'a chaotic cosmos'. They further define complexity as:

> '*the study of the behavior of macroscopic collections*' of complex systems '*that are endowed with the potential to evolve in time.*'

The interactions of these systems lead to the emergence of properties that describe and reflect a new wholeness not represented in the individual parts. Coveney and Highfield write that:

> 'a van Gogh painting is more than a collection of bold brushstrokes..... A swirling vortex in a turbulent ocean cannot be expressed in terms of individual water molecules any more than a happy thought can be depicted in terms of events within a single brain cell.'

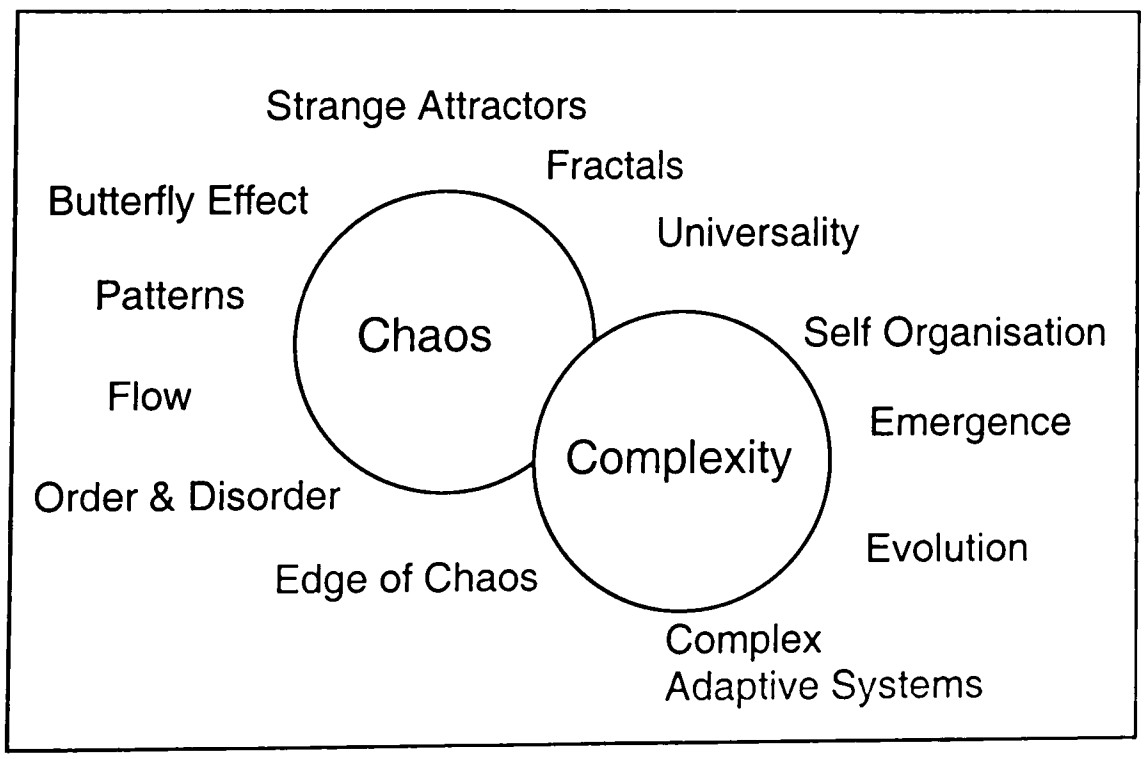
Furthermore, the holistic nature of complexity gives a new perspective and fresh insights into difficult concepts, such as the nature of life, of consciousness and intelligence, that traditional science has struggled to understand (Coveney and

Highfield 1995).

Complexity is considered by many scientists to have enormously wide ranging applications. Kauffman (1996) considers it has immense potential for understanding the nature of the universe and its multitude of complex systems. Merry (1995) refers to its applications in a wide variety of complex systems that may be biological, ecological, physical, social or economic. In the context of organizations complexity theory concerns the phenomena of 'turbulence and creativity out of which a new order may jell.... springing from the decay and disorder of the old' (Handy 1994).

How does one define the relationship between chaos and complexity? Whenever one reads of one then references to the other abound. It is clear that in many ways they have a symbiotic relationship. Figure 2.2. below shows the main features of both sciences.

Figure 2.2. The New Sciences of Chaos and Complexity.



Chaos was first recognised in the 1960s and 70s and complexity in the 1970s and 1980s. Merry (1995) describes how the 'interplays between order and

disorder, predictability and unpredictability, regularity and chaos' are features of complex systems. Yet terms such as 'order','disorder', 'predictability' and 'unpredictability' are the language of chaos science. Lewin (1993) ponders on the difference between chaos and complexity and suggests that chaos is always very random with very little order whereas complexity is about structure and order. However, as the previous chapter on chaos will have shown order unexpectedly exists within chaos and chaotic systems. Thus, in chaos, we have a very paradoxical science. Furthermore, it is not possible to study some aspects of complexity without understanding references to chaos theory and the next sections of this chapter will further demonstrate this.

Like chaos science, complexity is viewed by many as a scientific revolution that is creating a new way of explaining and describing the world far removed from traditional, linear, reductionist approaches (Lewin 1993, Waldrop 1994). Waldrop (1994) adds that complexity research is trying to answer all the questions that do not easily fit into conventional categories and to do so in new and often untried ways. Coveney and Highfield (1995) comment that complexity is changing not only the way we think about the universe but also the 'assumptions that underlie conventional science.'

The new science of complexity is 20 or so years old, yet many are describing its theories as highly significant not only for the scientific community but for the world at large. It is also seen as having great import for the future. George Cowan founder of the Santa Fe Institute described complexity as 'the sciences of the twenty first century' (quoted in Waldrop 1994).

2.6. Complexity Science - A Brief History

Complexity emerged and developed as a major area of scientific study from the

work of a number of scientists during the 1970s and early 1980s and received further recognition and prominence with the establishment of the Santa Fe Institute in New Mexico.

The table, Figure 2.3. below shows the major features of complexity science and some of the key researchers associated with them.

Figure 2.3. Key Features of the Development of Complexity.

Period	Key Concept / discovery	Discipline	Researcher
1960s 1970s 1980s	Dissipative Structures Self Organisation / Self Organising Systems	Chemistry Physics Chemistry	Ilya Prigogine Hermann Haken James Lovelock
	Complex Adaptive Systems	Mathematics Systems Physics	John Holland Eric Jantsch Murray Gell-Mann
	Emergence	Anthropology & Computing Mathematics	Chris Langton John Holland
	Evolution and Complexity	Biology	Stuart Kauffman Brian Goodwin
	All of above	Multi	Santa Fe Institute

One of the first scientists to research and develop theories that led to the foundation of complexity as a new science was Ilya Prigogine. Prigogine's work built upon that of Bertalanffy who in the 1940s developed further his ideas on general systems theory and postulated that self regulation was a key feature of open systems (Capra 1996).

Prigogine won the Nobel Prize in 1978 for his work on how 'random, chaotic changes in systems can lead to new patterns of order and stability' (Merry 1995). Prigogine's work was of ground breaking importance and the Nobel committee in awarding recognition to his research stated that he had fundamentally transformed and revised the science of thermodynamics and had created theories that bridged the 'gap between biological and social scientific

fields' (Merry 1995). Prigogine's theory of 'dissipative structures' was the first and certainly one of the most influential descriptions of a self organising system (Capra 1996) which is a central concept in complexity science. Prigogine's term 'dissipative structures' emphasises the origin of 'self organization in a far-from-equilibrium thermodynamic process' (Coveney and Highfield 1995).

Merry (1995) describes how Prigogine's ideas have now developed into a theory of how 'living things change and evolve' and how this is now being used in technology, economics, sociology, biology, medicine and many other aspects of life including politics and organisations. Coveney and Highfield (1995) also describe how dissipative structures affect all aspects of life including human systems.

One of the major figures in complexity science is Stuart Kauffman. Kauffman (1996) considers the reductionist approach has been a successful one but it 'has left a vacuum. How do we use the information gleaned about the parts to build up a theory of the whole?' The difficulty is, he explains, that the wholes may exhibit properties that are not explained by understanding the parts. Kauffman writes of his own search for the laws that govern all natural systems including markets and economies in the belief that Darwinism 'is not enough, that natural selection cannot be the sole source of order we see in the world.' Complexity science suggest that 'order is not at all accidental' and that complex systems 'left to their own devices, don't fly apart into chaos'. Self organisation arises naturally and there is 'order for free' (Kauffman 1996).

In the 1980s John Holland's analysis of adaption and his use of computer modelling led to the serious study of complex, adaptive systems at the Santa Fe Institute.

> 'Holland's personal intellectual agenda - to understand the

intertwining processes of emergence and adaption - essentially became the agenda of the institute as a whole' (Waldrop 1994).

Today there is recognition that in the natural world these systems include immune systems, brains, ant colonies, ecologies. In the human world they include 'cultural and social systems such as political parties or scientific communities' (Waldrop 1994).

Also in the 1980s Eric Jantsch made 'a strong argument for the omnipresence of a self-organising tendency; so that life, instead of being a chance event, was an inevitable consequence'(Lovelock 1989). Jantsch not only developed ideas on self organisation but also on aspects of autopoiesis and evolution thus linking together developments in modern biology with developments in physics, chemistry and systems thinking. His holistic approach is very reflective of the essence of complexity as an interdisciplinary science concerned with wholeness and connection.

2.7. Complexity Science - Main Themes and Theories

2.7.1. Self Organising Systems

Complexity studies systems that have the capacity to spontaneously self organise themselves into even greater states of complexity. The concept of self organisation first appeared in the 1940s and 50s when cybernetic scientists started to explore neural networks (Capra 1996). Heinz von Foerster a physicist and cyberneticist was a major contributor to the development of a theoretical understanding of self organisation and by the late 1950s he had developed a model of self organisation in living systems. This model was built upon and refined by other researchers including Ilya Prigogine, Hermann Haken,

Manfried Eigen, James Lovelock and Lynn Margulis (Capra 1996).

Prigogine's work on dissipative structures is recognised as central to the development of understanding of self organising systems (Merry 1995, Waldrop 1994, Wheatley 1994). Wheatley (1994) points out that self organising systems are sometimes known as self-renewing systems because they dissipate their energy in order to renew themselves. This ability to create new structures and new ways of behaving marks a significant difference between the early concept of self organising systems first devised by the cyberneticists (Capra 1996). These systems are also notable for their resilience (Wheatley 1994).

Self organising systems need energy to ensure that self organisation or renewal takes place (Capra 1996, Wheatley 1994). Intrinsic to these systems too, is their openness. Wheatley (1996) writes that as 'long as the system stays open to the environment, and matter and energy continue to be exchanged, the system will avoid equilibrium' and remain as the 'evanescent structures' described by Coveney and Highfield (1990). Capra (1996) writes:

> 'Summarising.... we can say that self-organization is the spontaneous emergence of new structures and new forms of behaviour in open systems far from equilibrium, characterized by internal feedback loops and described mathematically by nonlinear equations.'

Waldrop (1994) comments that the 'rich mixture of positive and negative feedbacks can't help producing patterns'. Thus he reminds us of the importance of the patterns that these systems produce which echoes the principle of patterning found in chaos science. Capra (1996) further emphasises the importance of pattern and states that unless we understand the importance of pattern we will fail to understand self organising systems.

Spontaneity is an important feature of these systems as they interact and reshape themselves (Kauffman 1996, Waldrop 1994, Wheatley 1994). The ability to spontaneously self organise enables 'flying birds to 'adapt to the actions of their neighbors, unconsciously organising themselves into a flock' and for people to 'unconsciously organize themselves into an economy' in order to 'satisfy their material needs' (Waldrop 1994).

Self organising systems are to be found everywhere in the living world. A hurricane, for example. is a self organising system which derives its energy from the sun, this in turn drives the wind and 'draws' rain from the oceans. Also a living cell is a self organising system which takes its energy from food and excretes energy in the 'form of heat and waste' (Waldrop 1994). Merry (1995) sees self organisation as a unifying principle which brings together the physical world and the living world, the inanimate with the animate. It also is the principle which underlies the emergence of the wide variety of complex systems and complex forms that exist whether physical, biological, ecological, social or economic.

Kauffman (1996) writes that:

> 'order of the biological world...arises naturally and spontaneously because of these principles of self-organization - laws of complexity which we are just beginning to understand.'

2.7.2. Complex Adaptive Systems

As stated earlier complexity science is very much concerned with the study of self organising systems and complex adaptive systems. Complex adaptive systems are self organising but they differ from self organising systems in that

they learn to adapt to changes in circumstances. For example, a laser beam is a self organising system but it does not learn to adapt to changing circumstances. Complex adaptive systems are living systems. They are adaptive, because they do not respond passively to events but they 'actively try to turn whatever happens to their advantage'(Waldrop 1994). For example, the human brain is always organising and reorganising its billions of neural connections in order to learn from its experience, and economies constantly respond to changes in trading and lifestyles (Waldrop 1994).

Kauffman (1996) writes:

> 'I suspect that the fate of all complex adapting systems in the biosphere - from single cells to economies - is to evolve to a natural state between order and chaos, a grand compromise between structure and surprise.'

Complex adaptive systems are found everywhere in the natural world, for example, in immune systems, cells, the brain, developing embryos and ant colonies and in the human world they include cultural and social systems. Holland maintains (Waldrop 1994) that these systems wherever they are found share certain crucial properties. First of all, they are a:

> 'network of many "agents" acting in parallel.....each agent finds itself in an environment produced by its interactions with other agents in the system. It is constantly acting and reacting to what the other agents are doing.'

Stacey (1996) echoes this when he draws on the work of Gell-Mann to describe complex, adaptive systems. He refers to large numbers of agents 'interrelated in a non linear way... in a way in which the action of one agent can provoke

more than one response from other agents.' There is no central controlling feature to complex adaptive systems. Control:

> 'of a complex adaptive system tends to be highly dispersed. There is no master neuron in the brain... if there is to be any coherent behavior in the system, it has to arise from competition and cooperation among the agents themselves (Waldrop 1994).

Secondly, Holland defines a complex adaptive system as a system with many levels of organisation, with agents at one level acting as the building blocks for agents at a higher level. For example, 'a group of individual workers will compose a department, a group of departments will compose a division, and so on' (Waldrop 1994).

Another property of complex, adaptive systems, and one which Holland considered very important, is that they are constantly 'revising and rearranging their building blocks as they gain experience' (Waldrop 1994). With reference to Holland's views Waldrop (1994) continues:

> 'Succeeding generations of organisms will modify and rearrange their tissues throughout the process of evolution. The brain will continually strengthen or weaken myriad connections between its neurons as an individual learns from his or her encounters with the world..... At some deep fundamental level, ... all these processes of learning, evolution, and adaption are the same. And one of the fundamental mechanisms of adaption in any given system is this revision and re combination of building blocks.'

Feedback and learning are major features of complex, adaptive systems. Stacey (1996) drawing on Gell-Mann (1994) notes that the system:

> 'observes the responses its actions provoke, as well as the consequences of those responses and uses this information to revise its schemes, in other words it employs feedback to learn or adapt.'

Lewin (1993) reports on a conversation that he had with Murray Gell-Mann on the nature of 'adaption'. Gell-Mann describes how a turbulent liquid flow is a complex system in that there are:

> 'eddies which give rise to smaller eddies and so on... there is information in the system, no question. But it doesn't produce a schema, a compression of information with which it can predict the environment.'

According to Gell-Mann, complex adaptive systems are pattern seekers who interact with their environment, learn from their experiences, and then adapt, non living complex systems do not.

Another property of living, complex adaptive systems, according to Holland, is that they anticipate the future.

> 'From bacteria on up, every living creature has an implicit prediction encoded in its genes.... Every complex adaptive system makes predictions based on its various internal models of the world - its implicit or explicit assumptions about the way things are out there. Furthermore, these models are much more than passive blueprints. They are active..... And like any other building blocks they can be tested, refined, and rearranged as the system gains experience.' (Waldrop 1994)

An adaptive system is able to take advantage and learn from what the world around it is able to tell it. In the business world companies make models or develop patterns of working based on a set of assumptions which in turn are based on their interpretation of the world (Waldrop 1994).

Stacey (1996) comments further on the way complex adaptive systems learn and interact with their environment. He writes that:

> 'the system and the environment together from a coevolving supra-system that, in a sense, learn its way into the future. In this coevolving supra-system, individual subsystems or agents learn, that is, they alter their schemes during their lifetimes and the system as a whole learns, that is it evolves.'

Thus notions of learning and evolution are all bound up in the behaviours of complex adaptive systems.

2.7.3. Emergence

The concept of emergence is a main theme that flows through studies of complexity. Emergence in seen in the properties of ecosystems, food chains, embryo development, human societies and especially in complex adaptive systems (Lewin 1993).

Edward. O. Wilson, at Harvard, considers that emergence is the core feature of complexity and contends that insects and humans share 'the biological impact of sociality' (Lewin 1993). There is a common factor in that both the lives of ants and the lives of humans 'are transformed by membership in a larger entity, an entity they also help create' (Lewin 1993). This is the phenomenon of

emergence.

Coveney and Highfield (1996) write:

> 'a human being is an emergent property of huge numbers of cells, a company is more than the sum of its pens, papers, real estate, and personnel, while a city is an emergent property of thousands or millions of human beings.'

Waldrop (1994) describes a computer simulation which attempted to show the essential nature of flocking behaviour in birds, herding in sheep and schooling behaviour of fishes. The simulation created an environment full of obstacles and programmed each 'boid' or birdlike agent to follow three simple rules of behaviour. These were: Try to maintain a minimum distance from other objects, including other boids; try to fly/move at the same speed as other boids in the vicinity; try to move towards the 'perceived center of mass of boids in the neighborhood.' Interestingly, there is no rule that says form a flock. The rules 'were entirely local, referring only to what an individual boid could see and do in its own vicinity. If a flock was going to form at all, it would have to do so from the bottom up, as an emergent phenomenon.' But every time the simulation was run flocks were formed. However, the boids were scattered they still formed up into flocks that flew 'around obstacles in a very fluid and natural manner.' This is truly emergent behaviour.

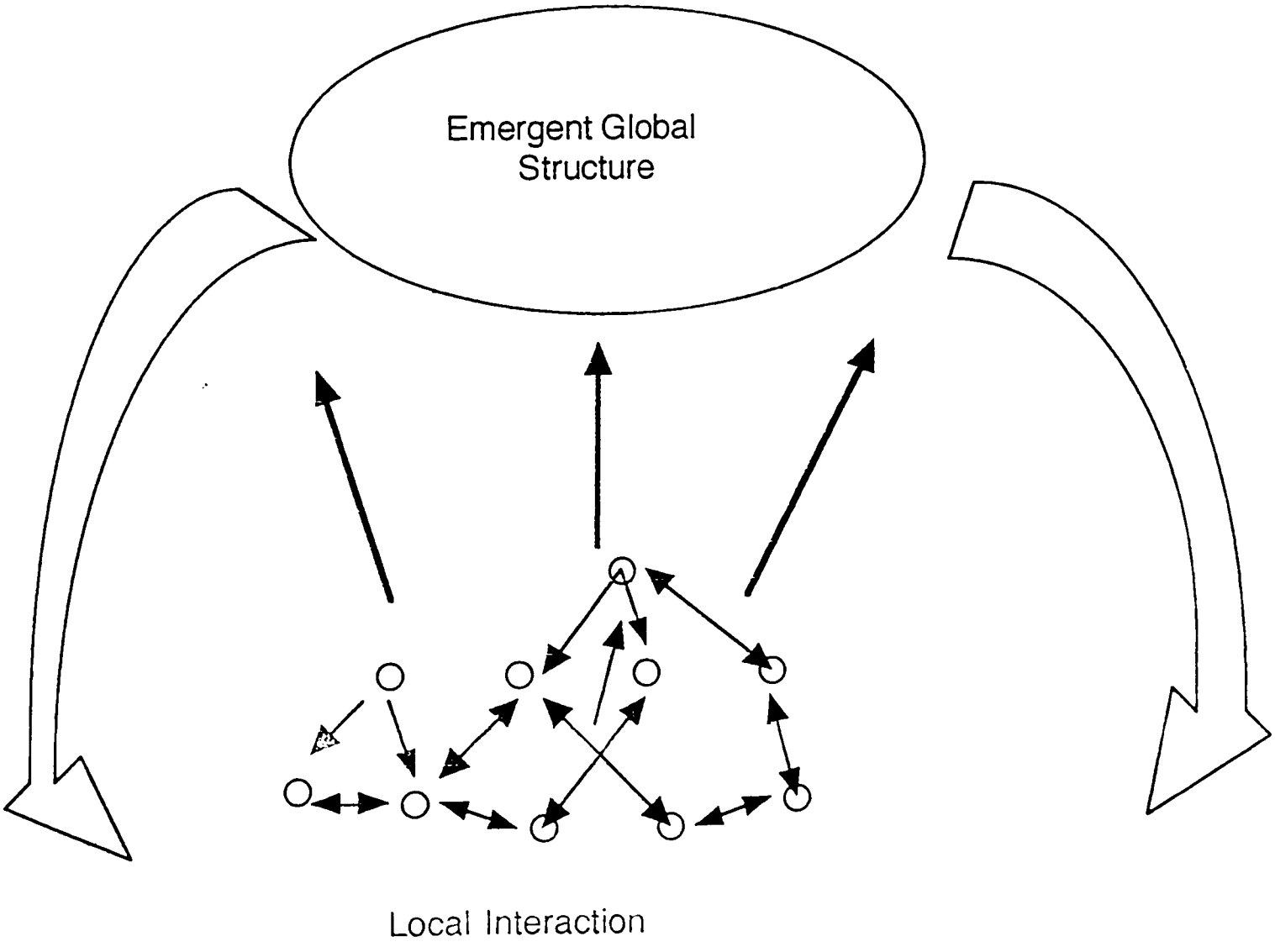
Emergence is a phenomenon of the process of evolving, of adapting and transforming spontaneously and intuitively to changing circumstances and finding new ways of being. And in doing this, something else, something complex, unexpected and enriching takes shape. Waldrop (1994) writes:

> 'Human beings try to satisfy their material needs by buying,

selling, and trading with each other, thereby creating an emergent structure known as a market, Humans likewise interact with each other to satisfy less quantifiable goals, thereby forming families, religions, and cultures. Somehow , by constantly seeking mutual accommodation and self consistency, groups of agents manage to transcend themselves and become something more.'

Chris Langton of the Santa Fe Institute describes how a global order emerges from the interactions in a local, dynamical system and in so doing a whole new set of properties emerge. Langton's view of emergence, Figure 2.4, below, shows how 'global properties' flow 'from aggregate behavior of individuals'.

Figure 2.4. Chris Langton's view of Emergence in Complex Systems adapted from Lewin 1993.



This global property, then 'feeds back to influence the behavior of the individuals... that produced it.' - Langton (quoted in Lewin 1993).

2.7.4. Evolution and Complexity

Lewin (1993) explores complexity in the context of the ebb and flow of life on earth and comments that Darwin saw the process of natural selection as essentially a gradual process 'capable of producing great innovation but only incrementally over very long periods of time, he baulked at the idea of rapid change.' In the 1960s and 70s Harry Whittington discovered that the Cambrian period had seen an 'explosive evolutionary innovation', which was followed by 'massive extinction' - this shaped the world as we know it (Lewin 1993). Lewin concludes that with reference to the 'Cambrian explosion' of life forms 'and mass extinctions, complexity emerges as a dominant force.'

Thus it is only comparatively recently that another view of the nature of life on earth began to emerge. The reality is that change is often dramatic and overwhelming and the landscape may be completely transformed as to be unrecognisable. The slow, incremental, step by step , 'let's select the best option' approach is not the only way nature has created the amazing diversity of life forms on planet earth. This has major implications for the way we think about change and transformation in organisations.

Kauffman (1996) considers that:

> 'The natural history of life may harbor a new and unifying intellectual underpinning for our economic, cultural, and social life.'

All forms of life diversify and adapt to niches created by the system. So too does an economic system seek to diversify and seek new niches for its goods and services (Kauffman 1996). Is this not how many organisations seek to thrive?

How does evolutionary biology connect with the business world? Kauffman (1996) argues that all organisms and organisations are 'evolved structures.' He writes:

> 'We are all, cells and CEOs rather blindly climbing deforming fitness landscapes. If so, then the problems confronted by an organization - cellular, organismic, business, governmental, or otherwise - living in niches created by other organizations, is preeminently how to evolve on its deforming landscape, to track the moving peaks.'

Lewin (1993) refers to the importance of connectedness in evolution. It is a vital part of any living system for 'connectedness is required if perturbations are to cascade through the system, producing avalanches of speciation and extinction.'

Connectedness, is a theme that links with concepts of patterning and concepts of organisation. It implies more than spatial relationships. One senses a mysterious, unifying rhythm at work between all the entities within a system and again this resonates with aspects of chaos theory.

2.8. Conclusion

This chapter has explored the development of the new sciences of chaos and complexity and some of their main features in order to devise a framework

within which to explore the world of organisations and organisational life.

The new sciences are not satisfied with the elegant constructs of the logical, rational world of classical science which is discussed in the next chapter. They are concerned with understanding the complexities, paradoxes and difficulties encountered in the real world. This is the world of dynamic living systems that behave spontaneously and unpredictably and human systems, and therefore, organisations are as much a part of this system as storm clouds or ant colonies. As the renowned economist Brian Arthur (quoted in Waldrop 1994) states:

> 'We are part of nature ourselves. We're in the middle of it....we are all part of this interlocking network. If we as humans try to take action in our favor without knowing how the overall system will adapt - like chopping down the rain forest - we set in motion a train of events that will likely come back and form a different pattern for us to adjust to, like a global change.'

Each individual working in an organisation has a mind which is a complex adaptive system and as groups and organisations people form other complex adaptive systems that interconnect and relate to natural systems 'to form an interconnected ecology' (Stacey 1996).

The next two chapters consider the relationship between science and organisations and particularly the powerful role played by classical science in influencing the development of organisations and organisation theory. Current notions of change and how to create change in organisations are also explored. Then Chapter 5 returns to the new sciences picking up the threads of this chapter and exploring how the new sciences may be used in organisations, especially in change and transformation processes.

CHAPTER 3

ORGANISATIONS AND SCIENCE

3.1. Introduction

What evidence is there that organisations have been influenced by science and scientific thinking? How far have the major organisation theories been influenced by the dominant scientific paradigm? How far has interpretation of these theories and management practice been affected? This chapter seeks for theoretical evidence of the influence of science and the scientific tradition in organisation theory and the development of modern organisations. I use the term 'modern' to refer to organisations in the 19th and 20th centuries - since the rise of the complex, large scale industrial societies of Western Europe and North America.

This chapter commences by reviewing in Section 3.2. the mainstream developments in science and the scientific tradition in the West over the last 350 years. Section 3.3. briefly considers the influence of science and the scientific tradition on society and thereby organisations.

Section 3.4. considers some of the major theories on organisations and organisational processes and takes a roughly chronological route. Pugh (1990) defines organisational theory as the study of 'the structure, functioning and performance of organisations, and the behaviour of groups and individuals within them.' I shall not break down my review into categories of structure, function etc. but rather will try to give a picture of the prevailing view or the dominant approach and include reference to any significant aspects of structure, functioning and so on as seems appropriate to my purpose. Pugh also observes that managers are the practitioners of theory and he views theory and

practice as 'inseparable'. Thus I shall seek for evidence in some of the significant trends in management practice and some of the popular influences.

It is easy to follow the thread of the development of organisations and organisation theory through the first half of this century. However, in the second half of the century things begin to speed up and diversify until by the 1980s and 1990s there is an overwhelming spread of ideas and theories about organisations. It is not possible to review them all so my selection will inevitably be influenced by my own experiences as a manager and as a training and development specialist.

In referring to modern organisational development (in the Western World) I shall not only explore the nature of the relationship between scientific thought and discovery and organisations but in so doing set the context for organisations today. This I believe will provide insights into the relationship between organisations, society and the developments in ideas and insights derived from the new sciences of chaos and complexity.

Section 3.5. comments briefly on the use of language including metaphors, for they offer significant pointers to the flow of dominant influences. Handy (1990) points out that the language we use indicates our attitudes towards organisations and organisational life.

3.2. Science and the Scientific Tradition

For some 300 or more years science as practised in the Western world has been dominated by a powerful paradigm whose influence extended far beyond the thoughts of the scientific community. A world view arose in the 17th and 18th centuries that saw the universe and all it contained as some giant machine

that operated according to a set of universal laws and principles. The image of the world as a gigantic piece of clockwork made up of sets of predictable cause and effect components shone in the minds of the educated classes and dominated language and thinking. It was believed that the key to understanding our universe lay in breaking it down into small pieces, and analysing each piece in a rational, logical way.

3.2.1. The Scientific Revolution and its Aftermath

The 17th century has been described as 'the century of genius' by the great modern philosopher Alfred N. Whitehead (Hampshire 1956). It was also 'the great formative period of modern philosophy' (Hampshire 1956) when science and philosophy were to have a powerful effect on each other.

Prior to the 'century of genius' the medieval world view was built upon Aristotle's notion that 'order is pervasive and exists in increasingly subtle and complex hierarchies' (Briggs and Peat 1989). This concept was built upon and developed into the Great Chain of Being in which all living things had a place on an ascending scale. The universe was viewed as a living, spiritual being (Capra 1996). But during the 16th and 17th centuries the mediaeval world view changed significantly. Experimentation and the development of new instruments weakened the spiritual view (Peat and Briggs 1989) and notions of a spiritual universe gave way to one of the universe as a machine composed of many machine-like parts (Capra 1996).

The work of Copernicus, Galileo, Descartes, Bacon, Newton and others saw a radical shift in world view during the period known as the Scientific Revolution (Capra 1996). Galileo confirmed Copernicus's hypothesis that the sun is the centre of our solar system and destroyed the Aristotelian notion of the earth and also man as the centre of the universe. Galileo believed that the natural world,

apart from our perception of it, is exactly as described in the laws of physics and mechanics and in the language of mathematics (Hampshire 1956). He wrote in his *Il Saggiatore* (quoted in Hampshire 1956):

> 'Philosophy is written in that vast book which stands forever open before our eyes, I mean the universe; but it cannot be read until we have learnt the language and become familiar with the characters in which it is written. It is written in mathematical language, and the letters are triangles, circles, and other geometrical figures, without which means it is humanly impossible to understand a single word.'

Thus a great early 17th century scientist prepared the way for the domination of the language of mathematics and science as the prime language with which to explain our world.

The subjective world of the senses was considered unimportant or even irrelevant to Galileo (Hampshire 1956) and thus the stage was set for the dominance of the intellect. This provided a powerful impetus to the coolness and detachment of the logical, rational tradition which decried the taste and odours of the natural world.

Two other great men who also profoundly influenced the development of science and the scientific tradition during the 17th and 18th centuries and beyond were Descartes and Newton. Briggs and Peat (1989) describe how:

> 'Newton's laws of celestial mechanics and Descartes' coordinates (which allowed scientists to envision the universe as a huge grid) made it seem that everything could be described in mathematical or mechanical terms.'

The French philosopher Descartes claimed that the human body could be explained by the same laws that ruled the planets (Coveney and Highfield 1995). Morgan (1986) points out that Descartes was fascinated by the study of automata and mechanical toys and viewed plants and animals as 'superior forms of machines'. Humans were thought of as machine-like but with special capacities for speech and reasoning. Descartes' mechanistic view of life has had a profound effect on biology and medicine which exists even today (Capra 1983). George Engel in 1977 (quoted in Capra 1983) writes: 'the notion of the body as a machine, of disease as the consequence of breakdown of the machine, and of the doctor's task as repair of the machine' reflects current medical practice.

Furthermore, Descartes saw a huge gap between the mind and the body (Fuenmayor 1991) and argued that they should be treated as separate entities (Capra 1996, Morgan 1986). Fuenmayor (1991) writes that the ideas of Galileo and Newton merged with Descartes 'dualistic assumption' and together 'reinforced the Cartesian ontological dualism.' This was to have far reaching effects way beyond the bounds of science.

The mechanistic view has always been with us and has influenced scientific thought from the days of the Greeks, Democritus and Leucippus through to the 20th century (Morgan 1986, Prigogine and Stengers 1984). But, as Morgan (1986) states, it received:

> 'its fullest and most comprehensive expression in the contributions to physics of Sir Isaac Newton who developed a theory of the universe as a celestial machine'

Classical Science or Newtonianism are the terms used to describe a body of

ideas that came together in the 17th and 18th centuries (Toffler in Prigogine & Stengers 1984). Capra (1996) describes how the 'conceptual framework' devised by Galileo and Descartes in which the world was a perfect machine controlled by mathematical laws was 'completed triumphantly by Isaac Newton, whose grand synthesis, Newtonian mechanics, was the crowning achievement of seventeenth century science.' Newton's *Principia Mathematica* published in 1686 built upon Galileo's work and has been described as a 'great edifice soaring about the ramshackle and temporary constructions around it' (Coveney and Highfield 1995). Its influence was phenomenal and extends to the present day and, some argue (Coveney and Highfield 1995) will influence the future too. Kauffman (1996) writes that with:

> 'a mere three laws of motion and a universal law of gravitation in hand, Newton not only derived tides and orbits, but unleashed on the Western mind a clockwork universe.'

The world Newton devised was characterised by materialism and reductionism and a view that things could be taken apart and examined without causing any real harm (Wheatley 1994).

3.2.2. The Challenges of the 19th Century

There was strong opposition to the Newtonian-Cartesian world view in the late 18th and early 19th centuries when it was challenged by the Romantic movement in the arts, and philosophy (Capra 1996). The Romantics saw the earth as a living, spiritual being and so revived an ancient tradition that had been usurped by the new scientific discoveries of the 17th and 18th centuries (Capra 1996). Alexander von Humboldt, the German naturalist saw global climate as a:

'unifying global force... recognizing the coevolution of living organisms, climate, and Earth crust, which almost encapsulates the contemporary Gaia hypothesis' (Capra 1996).

However, by the mid 19th century Capra (1996) claims the Cartesian, mechanistic view of the world once more held sway. Kauffman (1996) describes how during this period biologists classified living forms into hierarchical groupings using the Linnean taxonomy which is still used today.

Darwin's *Origins of Species* published in 1859 which described his theory of evolution was to make an astonishing impact on scientific thinking. Kauffman (1996) claims that Darwin's ideas 'devastated' biologists by demonstrating that species 'are not fixed by the squares of the Linnean chart' but rather evolve from one another. Capra (1983) claims that the theory of evolution compelled scientists to abandon their traditional, Newtonian view of the world as a machine fully developed and created by God, and to consider that the world was an evolving, ever changing, place. However, he points out, scientists did not abandon their reductionist approaches but rather focussed on fitting Darwin's theories into the classical framework'. Mendel's work on hereditary mechanisms and the emergence of the new science of genetics, in Capra's (1983) view reinforced the Cartesian approach. It did so by concentrating on fundamental building blocks and so failing to understand the properties of the whole entity. Capra claims, too, that geneticists still regarded living organisms as machines 'controlled by linear chains of cause and effect'.

The 19th century saw the establishment of evolutionary science, the emergence of the new fields of microbiology and biochemistry and the first understandings of hereditary mechanisms. Also Louis Pasteur laid the foundations for the new science of biochemistry and demonstrated the links between bacteria and disease (Capra 1996). By the end of the 19th century Maxwell's work on

electrodynamics and Darwin's theory of evolution had severely challenged the Newtonian model of the universe (Capra 1983). Scientists had developed new mathematical models to solve scientific equations, but they still relied on linear components or linear approximations if difficult non linear equations arose (Capra 1996).

3.2.3. Further Scientific Revolutions - The 20th Century

In the view of Briggs and Peat (1989) reductionism and the mechanistic view of the world still held sway at the end of the 19th century. Then two major developments in physics in the early 20th century 'shattered all the principal concepts of the Cartesian world view and Newtonian mechanics'(Capra 1983). These were relativity theory and quantum theory.

Albert Einstein initiated 'two revolutionary trends in scientific thought' (Capra 1983). One was his theory of relativity, the other was a new way of looking at electromagnetic radiation or the theory of atomic phenomena (Capra 1983). According to Capra (1983) Einstein's work:

> 'unified and completed the structure of classical physics, but at the same time it involved radical changes in the traditional concepts of space and time and thus undermined one of the foundations of the Newtonian world view'.

During the 20th century discoveries in the world of atomic and subatomic particles shook the traditional views of physicists and again challenged the dominant scientific paradigm that had existed for some 300 years (Capra 1983). Quantum theory or quantum mechanics was developed in the early years of the 20th century by a group of international scientists including, Einstein, Planck, Bohr, Schrodinger, Heisenberg and others. Briggs and Peat (1989) describe

quantum mechanics as one of 'the most successful theories in the history of science' which made 'accurate predictions about a host of atomic, molecular, optical, and solid state phenomena' which led on to the development of nuclear weapons, lasers and computer chip technology. These discoveries and conclusions were to severely challenge the prevalent view of physics in a revolutionary way which the scientists involved themselves found difficult to comprehend at times. Briggs and Peat (1989) write that the new physics was to uncover many 'troubling paradoxes' that eventually led many scientists to theorise that the universe must be essentially a highly complex, interconnected, interacting, whole.

Cybernetics in the 1940s and 50s recognised the importance of both negative and positive feedback loops and today the existence of both kinds of feedback everywhere at all levels of living systems is acknowledged (Briggs and Peat 1989). Recognition of the ubiquitousness of feedback and of its many properties prepared the way for many of the discoveries in chaos and complexity.

The 1960s and 1970s saw advances in physics and chemistry with Haken's developments on laser theory and Prigogine work on 'dissipative structures' (Capra 1996). Both were working on systems in far from equilibrium situations and their explanations were to recognize the amazing properties of self organising systems. Scientists were beginning to make significant discoveries in a world far from the ordered, predictable paradigm of classical science. Advances in mathematics and the arrival of high speed computers made a significant impact (Briggs and Peat 1989, Capra 1996) which further opened up the nonlinear world. These explorations contributed to the emergence of the new sciences of chaos and complexity. Gleick (1993) writes that the most passionate advocates of the new sciences believe that the 20th century will be remembered 'for just three things: relativity, quantum mechanics, and chaos.'

Priesmeyer (1992) believes that science is in a transition period prior to the emergence of a new paradigm. This he ascribes to the discoveries of the non linear scientists and the development of chaos theory. The evidence seems to suggest that the classical, Newtonian, approach to science still dominates but major challenges threaten and a new world view is emerging (Capra 1983, Coveney and Highfield 1995).

3.3. The Relationship between Science and Society

Toffler in Prigogine and Stengers (1984) describes the relationship between science and society as an open system with science 'embedded in society and linked to it by very dense feedback loops.' He sees science as being heavily influenced by its external environment and 'its development shaped by cultural receptivity to its dominant ideas.' Wheatley (1994) recognises the powerful relationship between science and society and the influential role science plays in society's collective unconsciousness. She writes:

> 'scientific concepts and methods are embedded deep within our collective unconscious. We cannot escape their influence nor deny the images they have imprinted on our minds as the dominant thought structure of our society.'

Toffler in Prigogine and Stengers (1984) sees it as no coincidence that concepts of a mechanistic universe were welcomed and reinforced during the machine age which paralleled the rise of the industrial revolution. For instance:

> 'the dramatic spread of factory civilisation, with its vast clanking machines, its heroic engineering breakthroughs, the rise of the

railroad and new industries such as steel, textile, and auto, seemed merely confirm the image of the universe as an engineer's Tinkertoy.'

Furthermore he suggests that the notion of a simple, uniform, mechanical universe influenced many other areas of life not immediately associated with scientific ideas. He gives examples to support this - the machine-like construction of the American constitution and the concept of the balance of power in European politics. Merry (1995) too, sees this influence affecting all aspects of human life in modern industrialised societies.

Morgan (1986) claims that scientists, philosophers and psychologists have all been influenced by the classical scientific tradition. Further, it has pervaded the dominant world view and radically transformed the nature of work. This he sees reflected in the highly structured, routine, regular way in which the modern organisation is run.

Wheatley (1994) too sees science as having a powerful influence on many of our operating principles and lists as examples, planning, measurement, motivation theory, business management and organisation design.

Social science has been heavily influenced by the idea of man as a machine and this notion has had a powerful influence over behavioural psychology (Morgan 1986). Morgan suggests that these ideas affected modern psychology through the work of philosophers such as Hume, Lock and Bentham. He refers to the work of Schon (1963) who gives an analysis of how Newtonian physics has been used in psychological theories.

The scientific notion of the world as a machine encouraged a disregard of the natural environment only now being addressed by the ecological sciences.

This disregard for the natural world was reinforced by Galileo's approach to scientific enquiry (Capra 1996). Capra quotes the psychiatrist R.D.Laing who states that:

> 'Galileo's program offers us a dead world: Out go sight, sound, taste, touch, and smell, and along with them have since gone aesthetic and ethical sensibility, values, quality, soul, consciousness, spirit. Experience as such is cast out of the realm of scientific discourse. Hardly anything has changed our world more during the past four hundred years than Galileo's audacious program. We had to destroy the world in theory before we could destroy it in practice.'

Traditional science emphasised stability, order, uniformity and equilibrium and was concerned with closed systems and linear relationships. (Toffler in Prigogine and Stengers 1984). People have been encouraged to 'to see things through the lens of order' and have become convinced by the scientific paradigm that the world is normally an ordered, predictable place (Merry 1995). Further, Merry, points out, this world view suited the needs of industrialised societies and also met the needs of people and societies looking for some order, stability and certainty in the lives. This view of a stable world has, according to Merry, become deeply ingrained 'in our belief systems, our institutions, our identities, and our value systems'.

How our values have been influenced by science is also explored by Capra (1996). He alleges that during the 17th century values and facts were separated and that today scientific facts are still divorced from actions and values.

Descartes' argument that the mind and the body, and subject and object, should

be separated in the pursuit of reason has had far reaching consequences affecting all aspects of society as Douglas (1986) points out with reference to Shapin and Barnes (1976):

> 'In modern industrial society the analogical relation of head to hand was frequently used to justify the class structure, the inequalities of the educational system, and the division of labour between manual and intellectual worker. The shared analogy is a device for legitimising a set of fragile institutions.'

The importance of cultural and religious influences in reinforcing the scientific traditions should not be overlooked. Pugh and Hickson (1989) suggest that Weber was influenced by Protestantism and the work ethic whereby industry on earth implied salvation and spiritual riches in the afterlife. Thus the technology of the industrial revolution along with the popular scientific view of the world enabled the successful manifestation of the Protestant work ethic which powerfully affects Western society even today.

3.4. Organisations and the Influence of Science and the Scientific Tradition

3.4.1. Early Days - Organisations as Machines

The notion of the organisation as a machine is one that has been both widespread and potent for many years. How did this view of organisations arise and why has it been such a powerful perception in the Western world for so long? This is a key question for its answer demonstrates the close relationship between science and the organisation.

Morgan (1986) suggests that it was the spasmodic development of the industrial

revolution in Europe and North America which reinforced earlier formal concepts of organisation. Enterprises were set up to make best use of the 'new' machines and in so doing devised of a way of working life that focussed on the needs of the machines and not the people using them.

The industrialists of the 18th and 19th century were able to seek inspiration for the design of their new enterprises from the examples of older organisations (Dessler 1980), such as the church and the military. Burgoyne (1995) in writing of the 'agriculture-manufacture transition' which was the industrial revolution, noted that it borrowed 'command hierarchies from the military, church and state.' During the second half of the 18th century Frederick the Great of Prussia streamlined and reformed his army using as his inspiration the 'mechanical inventions of his day' (Morgan 1986). Frederick introduced ranks and uniforms, a range of rules and regulations, precise procedures and practices and specialized tasks in order to create the perfect fighting machine (Morgan 1986). Frederick was powerfully influenced by the scientific approaches of his day and by Descartes and LaMettrie.

The early entrepreneurs and industrialists were not only able to draw on the military example but were keen to embrace the popular scientific notions of the day. Burns (1963) observes that the:

> 'modern industrial system was founded at a time when the perception by early mechanical scientists that natural events "obeyed" certain laws became widely diffused - in the eighteenth century.'

Furthermore, these 'craftsmen-inventors' saw not just an interesting analogy but 'one process obeying a law which might also apply to a different and entirely new process'.

This is particularly evident in the way the new factory system modelled itself. Burns (1963) points out that the factory system emphasised the needs of the machines with a strictly controlled hierarchy of workers to support them. As it developed and became the norm for productive activities so the organisational structure to support it evolved. For example, the 18th century iron master's role was broken down into more jobs and new, larger, organisational structures emerged which were patrimonial and hierarchical in nature (Burns 1963). The number of administrative employees rose as the size of the enterprise increased and Burns identifies this with the emergence and growth of bureaucracy.

3.4.2. The Bureaucracy and Science

In the beginning of the 20th century many of the ideas that emerged from the industrial revolution were brought together to create a comprehensive theory of organisation and management. Max Weber, the German sociologist is credited as a major contributor to the development of this theory and especially, the theory of bureaucracy (Koontz and Weihrich 1988, Morgan 1986, Toffler 1971). Weber noted 'the parallels between the mechanization of industry and the proliferation of bureaucratic forms of organisation' and in his work we find the first full definition of bureaucracy (Morgan 1986).

Pedler et al (1991) and Toffler (1971) remind us that many bureaucratic organisations have stood the test of time. Indeed, it was Weber's analysis of the organisation and structure of the church, government, the military and other long standing organisations that led him to believe that hierarchy, authority, and bureaucracy are at the roots of all social organisations (Koontz and Weihrich 1988).

The notion of organisations as machines and the way of thinking that this

encourages underpins the bureaucratic approach and most organisations have some bureaucratic aspects to them, such is the power of the mechanistic concept (Morgan 1986).

Weber's theory was primarily a theory of organisation structure, and he saw clearly defined roles, a stable hierarchy and written procedures as the ideal (Dessler 1980). Efficiency was achieved through the fixed allocation of tasks, hierarchical supervision and a system of rules and regulations (Morgan 1986) and military style discipline (Dessler 1980).

Weber considered that the bureaucracy was the most efficient form of organisation possible and described it as being like a 'modern machine' (Pugh and Hickson 1989). As Pugh and Hickson note, there was a clear separation made between 'personal and business affairs'. This approach resonates with the separation of intellect from senses that Galileo suggested and with Descartes' view that the mind and the body should be treated as two separate entities.

Weber considered the rational use of authority and control as highly desirable for an organisation (Pugh and Hickson 1989). Here is the long shadow of the logical, rationalist tradition and its continuing influence over the centuries. Further the manifestation of linear thinking is clearly apparent in the bureaucratic organisation with its linear, hierarchical structure.

Pugh and Hickson (1989) also point out that Weber's model bureaucracy had a set of 'rules and procedures within which every possible contingency is theoretically provided for.' Here again one encounters a view of the world that events that may be predicted and planned for with a large degree of certainty.

Weber is credited by Morgan (1986) with envisaging the bureaucratic type of

organisation as a 'manifestation of a more general process of rationalization within society as a whole'. Thus the importance attached to the notion of rationalization which linked to the notion of progress and striving towards some higher end.

3.4.3. Science and Classical Management Theory

The French industrialist Henri Fayol is generally credited with being the founder of modern management theory (Koontz and Weihrich 1988). He considered specialization of tasks as reflecting the natural order which 'is observable in the animal world, where the more highly developed the creature the more highly differentiated its organ.' (Fayol 1916 in Pugh 1990). Here Fayol appears to be drawing on contemporary approaches to evolution and natural selection.

Fayol was concerned with organisation structure and recommended a centralised, functionally specialised, hierarchical, structure in which everything had its specific place (Dessler 1980). Management was all about planning, forecasting, organising, coordinating and controlling. Sanctions and close supervision were necessary to control workers and ensure that the work was done (Dessler 1980). Human emotions or passions were seen as weakness and had to be subdued because they hindered the purpose of the organisation. This approach resonates with the traditional, rational, approach to science and serious study.

The principles of classical management theory are derived from the principles developed by Fayol (Morgan 1986) and they reflect an approach dominated by linear thinking, reductionist principles, and cause and effect arguments. Morgan (1986) sees the classical organisation as machine-like, devised by theorists who drew on a 'combination of military and engineering principles.'

Morgan (1986) claims that the classical management theorists, Fayol, Mooney and Riley and Gulick and Urwick have played a very influential role in developing a theory which is essentially a 'theory of machine design'. Further he contends that their basic approach saw management as a process of rational planning, and controlling. 'Each theorist codified his insights, drawing on a combination of military and engineering principles' based on ideas first used by military men. This model, Morgan claims, provided the foundation of management theory in the first half of the 20th century and its principles are still in widespread use today.

3.4.4. Organisations and Scientific Management

The notion of scientific management was pioneered by the American, Frederick Taylor who manifestly drew on his understanding of science and scientific method to devise a 'theory' of management. He believed that work could be studied scientifically (Dessler 1980) and through the application of 'scientific method' he could increase efficiency and productivity (Koontz and Weihrich 1988). Taylor understood 'science' to mean 'systematic observation and measurement' (Pugh and Hickson 1989). His scientific approach extended to all tasks however menial or small and did not allow for the use of guess work or intuition.

Taylor's ideas came in for considerable criticism at the time over the way in which they appeared to treat people (Pugh and Hickson 1989). Morgan (1986) comments that Taylor's approach brought about great increases in productivity but at the expense of reducing many workers to 'automatons'. Taylor's approach to work design fitted very well with the development of assembly manufacture in the early years of this century and his ideas were most famously embraced by Henry Ford.

Scientific management as advocated by Taylor lost sight of the complex, living aspects of human beings and in many ways continued the trend begun in the 18th century of treating men and woman as mechanical objects or operating parts of some larger machine. '

Taylor's ideas were taken up and developed by other practitioners and thinkers, most notably Henry Gantt and Frank and Lilian Gilbreth and in turn they developed Work Study or Industrial Engineering. Kakabadse et al (1988) point out that Gantt and the Gilbreths advanced understanding of the manager's role. It was to organize activities, while the role of the worker was to carry them out. It is disturbing to note that in 1988 Kakabadse et al write admiringly that this approach:

> 'demonstrated that efficiency could be improved by using the scientific method of job design, and by employing the legitimate authority held by the manager within the organisational hierarchy.'

Gantt according to Morgan (1986) carried the vision of the world as a machine to extremes in his proposal for an organisation called 'The New Machine'. His idea was that all industry should be 'put under the control of engineers, who would design and run it with mechanical efficiency.'

There has been much criticism of the early management theorists, and Dessler (1980) writes that they:

> 'tended to view organisations as something akin to machines - machines that could be laid out in blueprints (organisation charts), designed to provide the most efficient service, and oiled periodically (with financial incentives) to keep all the human "parts" operating as they were designed to.'

They saw the organisation as a closed system, discounted environmental influences, and relied on rules and close supervision to the extent that often the rules became the 'ends in themselves' (Dessler 1980).

Another significant result of Taylor's thinking was the division of workers into those who thought and those who acted (Morgan 1986) which again shows the influence of Descartes and the traditional scientific paradigm.

3.4.5. People in Organisations - Science and the Behavioural Influences

In the first half of this century other theorists and practitioners were contributing to ideas on organisations and organisational life as well as major figures like Taylor, Fayol and Weber. Hugo Munsterberg a German psychologist is credited by Koontz and Weihrich (1988) with being the founder of industrial psychology. Pugh and Hickson (1989) however, remind us that Elton Mayo is often referred to as the founder of the Human Relations Movement and industrial psychology. Both men demonstrate a direct link between the spread of the new science of psychology, the emergence of social science and their applications to people in organisations.

The Hawthorne Studies carried out during the 1920s and 30s demonstrated that 'business operations were not merely a matter of machinery and methods but also of gearing these with the social system' (Koontz and Weihrich 1988). Kakabadse et al (1988) claim that the Behavioural School took off as a result of this work and led to research and interest in management styles, behaviours and morale.

The behaviourists and the social and organisational psychologists saw the organisation as an organism and a 'natural system' and not a formal

mechanism (Pugh and Hickson 1989). They suggested a radically different kind of organisation to the one recommended by the traditional theorists (Dessler 1980). They envisaged a more 'organic' organisation which was less rigidly controlled, more adaptive and less rule bound. Organisational psychologists like Argyris, Herzberg and McGregor showed how it was possible to integrate the needs of individuals and organisations and as a result of their influence 'alternatives to bureaucratic organisation began to emerge' (Morgan 1986).

Yet the work of many of the behaviourists shows the influence of the classical scientific paradigm. For example, it is interesting to note the influence of the notion of a linear hierarchy in Maslow's 'Hierarchy of Needs Theory'. This was to recognise human needs on an ascending scale, rising from the fulfilment of basic physiological needs to the final need for 'self actualisation' (Koontz and Weihrich 1988). Maslow's approach was modified and followed by Herzberg and his 'Two Factor Theory' which explored notions of motivation and job satisfaction. In some aspects their ideas demonstrated a simplistic cause and effect approach and linear thinking which oversimplified and attempted to rationalise the complexity of real human behaviours.

Psychology was not the only major scientific influence on the 'people' or behavioural theorists but also biology influenced the development of organisational theory since the 19th century (Morgan 1986). Morgan sees the 'influence of the organic metaphor' in the Hawthorne studies of the 1930s, and in the work of Maslow in the 1940s, Argyris, McGregor and Herzberg in the 1950s and 60s.

3.4.6. Other developments - the 1960s, 1970s and early 1980s

By the 1960s theorists were becoming aware of the importance of organisational appropriateness, and the environment both inside and outside

an organisation. Burns and Stalker developed their ideas on two ideal types of organisations, each at the 'extreme points of a continuum along which most organisations can be placed' (Pugh and Hickson 1989). The first type was the 'mechanistic' organisation which is basically the bureaucracy and suits a stable environment (Handy 1993). Whereas, the other organisation, the 'organic' or 'organismic, adapted to conditions of change (Burns 1963). It is flexible in structure, uses information and advice rather than rules and instructions and there is 'a continual adjustment and redefinition of individual tasks' (Pugh and Hickson 1989). Morgan (1986) saw this reflecting the notion of the organisation as an organism and drawing on ideas from biology. As a result of this work the term 'mechanistic' has now become more clearly identified with traditional approaches to the management of organisations rooted in the work of Taylor, Fayol and Weber. The ideas of Burns and Stalker have grown in prominence in the 25 years since they first published them (Morgan 1986).

The systems approach to organisations which developed during the 1950s and 60s took a more holistic approach to organisations and built on the notion that organisations, like organisms, are open to their environments (Morgan 1986). They take resources in, 'work on them and push them out, transformed' (Handy 1993). Priesmeyer (1992) attributes this approach to a developing awareness of the organisation's relationship with its environment. During this period Henry Mintzberg's research discovered that managers worked in an entirely different way to the neat, functional model prescribed by Fayol and he constructed a model which broke the managers' role down into ten roles in three categories: interpersonal, informational and decisional (Kakabadse et al 1988). It was a move to recognise the human behavioural factor but it still promoted the notions of authority and control and the chain of command.

Peter Drucker devised the concept of 'Management by Objectives' in the 1950s (Drucker 1987) and it was seen during the 1960s and even in many textbooks

today, as an ideal way to plan and control activities in an organisation (Priesmeyer 1992). In Morgan's (1986) and Koontz and O'Donnell's (1955) view MBO was a reinterpretation of classical management theories as are other modern management systems like Management Information Systems (MIS) and Planning, Programming, Budgeting Systems (PPBS).

The 1980s saw many western organisations enthusiastically embracing Japanese management ideas like Total Quality Management. People were encouraged to think for themselves, to work in teams, to develop themselves and to seek for continuous improvements (Handy 1990). Many aspects of the Japanese approach were Taylorist but, unlike the West the Japanese combined thinking with doing, which may explain why about 80% of TQM initiatives were unsuccessful (Wickens 1995).

3.4.7. Science and Organisations Today - the late 1980s and the 1990s

Between 1985 and 1993 some 40% of the companies in the Fortune 400 disappeared, either through merger or failure (Handy 1993). Thus the 1980s and 90s has seen the rise of a range of organisational preoccupations concerned with adaption and survival that come under the blanket title of change. Many organisations sought to address their problems via restructuring and Drucker (1987) describes how the concept of decentralisation became 'a principle of organisation structure'. Organisations were also awash with notions of 'delayering', 'right-sizing', and 'other euphemisms' (Garratt 1995) 'business process re-engineering', 'delayering' and 'becoming lean' (Burgoyne 1995). Peter Benton (in Coulson -Thomas and Coe 1991) states that:

> 'the main management change in recent years has been the transformation of the large monolithic organisation into a lean flexible organism. The traditional command and control

hierarchies ..... prove arthritic and unresponsive in turbulence.'

Coulson -Thomas and Coe (1991) describe how the large bureaucracies are 'melting down into slimmer, flatter network organisations'. How they are becoming more flexible and responsive and more 'like organisms than machines'. But as Coulson-Thomas and Coe report all is not well with many of these new style organisations. There are problems of work overload, increased work stress, lack of vision, poor decision making, corporate in-fighting and so on. Thus many of those forward looking organisations who had dramatically responded to the challenges of the 1980s had created a new set of problems with which to survive the 1990s.

Business process re-engineering, for example, was enthusiastically embraced by many organisations in the early 1990s as a way of improving efficiency and profits by streamlining or removing bureaucratic systems (Mumford and Hendricks 1996). Mumford and Hendricks observe that in a 'headlong rush' to save costs many companies did not seek to improve by reorganisation and rethinking about work processes but rather by drastic staffing reductions. Many organisations had 'equated re-engineering only with downsizing and other "slash and burn" exercises in cost reduction.' Some chief executives also had used the process to rid themselves of 'cumbersome, bureaucratic chains of command without ceding control' (Mumford and Hendricks 1996). There were many critics of the concept and by 1996 it was being described as a management fad that had failed because it had been misunderstood. Mumford and Hendricks ascribe this partly to a cultural change. They write:

'It seemed that there had been a cultural change. During the 1980s , Deming and the socio-technical arguments were influential... Company relationships were to be positive and creative. However, during the recession.. the quality and socio-

technical movements lost influence. Quality became control, and managers fired employees who had poor quality measurements.'

Many managers faced with increasing upheavals and fresh situations had used old ways of doing things. The influence of classical management theory is so pervasive that even as organisations attempted to update their ideas and approaches to organisational life they were hampered by a subconscious mind set. Morgan (1986) states, 'the ideas of classical management theorists are reinforced under the guise of modern management' and those attempting to devise new systems for organisations are only able to think mechanistically.

However, alongside the gloomy picture of old mindsets and the adoption of these harsh processes there are new concepts of organisations emerging that recognise organisations as complex systems full of human potential. One of the most notable of the new ideas is the concept of the 'learning organisation.' Handy (1990) refers to organisations as being 'intelligent', and that these intelligent organisations are 'learning organisations' or 'learning companies' (Pedler et al 1991). Garratt (1995) writes that after the Second World War there was a 'a major rethink about the nature of organisations and their role in a democratic society'. At the same time 'there was a convergence of disciplines - psychology, sociology, cybernetics, economics and ecology' which together with existing notions of finance and production combined to form 'the basis of management education' and 'set the scene for what crystallised nearly 40 years later as the learning organisation' Garratt (1995).

Peter Senge (1992) writes that a learning organisation 'is continually expanding its capacity to create its future' and that for 'such an organisation, it is not enough merely to survive'. Learning organisations are about creative as well as adaptive learning; they have an evolving shared vision; they use systems thinking; and they spend time challenging their mental models (Senge 1994).

These are organisations which facilitate the learning of all their members, which constantly reframe their view of the world and continuously adapt and transform themselves (Handy 1990, Pedler et al 1991). Here are ideas drawn from cell biology, evolutionary biology and new understandings about brain functioning and living systems.

The notion that there could be many forms of organisational structure: clover leafs and federalist structures (Handy 1990) matrix structures and networks (Pedler et al 1991) each adopted for its suitability to organisational purpose is gaining ground. There is recognition that organisations have to be more flexible and suited to their own particular role, location, situation in the market place and so on. Here are influences of the new scientific approaches along with practical recognition that old models no longer work as well because the conditions they were created for no longer exist.

3.4.8. Old Influences Run Deep?

Since the 1970s there has been a deluge of studies and resultant theories and ideas on how to design, develop and run organisations. However, in spite of this tide of new ideas many of the old notions derived from the late 19th and early 20th century tradition still seem to run deep. Outwardly things may appear to be different but the traditional scientific paradigm often operates, albeit frequently at a subconscious level.

Handy (1990) points out that the Newtonian view of science is manifest in organisations in the use of sets of rules, and planning and prediction activities based on the notion that people are part of a 'well ordered system.' Wheatley (1994) comments that organisations are intent on:

> 'gathering extensive numerical data, and on making decisions

using sophisticated mathematical ratios... building elaborate models.. creating more advanced forms of analysis.'

This she observes is a reductionist, cause and effect approach which draws everything 'in lines and boxes'.

Checkland (1994) writes that our current ideas on management are 'rather primitive and probably not up to the task' because they are based in the 'technologically orientated thinking' of the 1960s.

Many modern writers and theorists continue to be affected by Taylor's ideas (Koontz and Weihrich 1988, Morgan 1986) and the work of Fayol (Pugh and Hickson 1989). Wheatley (1994) refers to William Bygrave (1989) who noted that many management strategists 'from Chandler to Porter' were originally engineers or physicists or admirers of those disciplines and commented on the close connection between their scientific training and their 'attempts to create a systematic, rational approach to business strategy'.

Handy (1990) refers to the common perception of organisations as machines or 'as gigantic pieces of engineering, with largely interchangeable human parts.' Morgan (1986) notes too that organisations are still often referred to as if they were smoothly operating machines designed to achieve predetermined objectives.

The huge, impersonal, factory is perceived very much as an old model of how to establish and run a productive enterprise. The early textile mills rose up floor upon floor with machines given preferential space to those humans who tended them. But as Morgan (1986) reminds us the large paper processing offices of the 1980s and 1990s set up to deal with insurance, tax or banking returns, are designed to operate like machines and 'their employees are in essence

expected to behave as if they were parts of machines.' How much has really changed ?

Fowler (1997) calls for an end to the inequality of status endured by blue collar workers and writes:

> 'Distinctions between manual and non-manual employees are ingrained in the UK's employment culture. They have historic roots in the different patterns of factory and office work that evolved during the industrial revolution,'

Here are echoes of Descartes.

'People are our greatest asset' trill the writers and management specialists, yet unwittingly they use the language of the balance sheet as do many of the supporters of some of the newest concepts of organisations. For example, in February 1997 I received unsolicited details of a conference on 'Knowledge Management'. The event was designed for 'senior level professionals in knowledge intensive industries involved in quantifying, leveraging and encouraging growth of intellectual capital.' Here is the language of accountancy with built in inferences of traditional scientific respectability. Key phrases describing one of the sessions read as follows:

*'Identifying the four levels of professional intellect'

*'deep knowledge of the web of cause and effect relationships underlying a discipline'

* 'Models and techniques of measurement'

* 'incorporating critical success factors as quantifiable ratios'

*'measuring the speed of competence development and sharing intellectual capital ratios.'

This suggests that the classical, linear, logical, rationalist approach is very much alive. Sadly the proponents of these ideas believe at the conscious level that they have discovered new ways of thinking and behaving yet their language indicates quite the opposite.

Even some of those writing on learning organisations reveal influences from the past. Garavan (1997) refers to Mumford's work on the pyramid of learning and states that the 'idea of hierarchical ordering or levels of learning is popular in the learning organisation literature'. Garavan also refers to Pettigrew and Whipp (1991) who describe the notions of single / double loop learning as mechanical. Thus some writers on learning organisations may well have been influenced by the linear, mechanistic approach. Certainly they themselves recognise that many of the organisations they observe do not provide the conditions for learning to take place. Garavan (1997) refers to Jones (1994) who comments that many organisations are unable to understand and to measure the learning that has taken place and employ measures that are essentially a controlling device.

Peter Wickens (1995) refers to Richard Pascale's book *Managing on the Edge* which illustrates 'the rise and fall' of managerial 'fads'. It begins with Taylor's scientific management 'rising through the teachings of the behaviouralists and reaching a crescendo over the last 25 years'. According to Wickens we have become 'managerial "fad surfers"' riding the waves of the latest ideas. Morgan (1986) too comments on the 'fad and fashion' thinking which dominates organisations. Is this partially attributable to a belief that there is one right way or a 'truth' that will provide the solution needed and is a reflection of the traditional scientific approach?

Many organisations are experimenting with new structures and new concepts about organisations and organisational life but how radical and deep rooted

have these changes been? I would contend on the evidence in this chapter that a paradigm shift is needed before we shall be fully able to develop organisations that are designed for life in the 21st century.

3.5. The Significance of Language and Metaphor

Language and its use of images can tell us a great deal. A dynamic, living language evolves and adapts to mirror exactly every nuance and facet of the world it seeks to interpret and describe. It can also enable us to re visualise our world for as Winograd and Flores (1991) point out a 'new way of speaking in turn creates changes in the world we construct.' If, however, a language fails to adapt then it may serve as a mirror to a society that is also failing to change.

Gareth Morgan

Morgan has used the notion of metaphor as a way of exploring and understanding organisations and their complex character. He writes (1986) that he developed this approach to organisational analysis 'in the belief that organisations are generally complex, ambiguous, and paradoxical'. Interestingly, this belief accords with one of the basic tenets of the new sciences of chaos and complexity: that life and living systems are complex, often ambiguous and frequently paradoxical.

Morgan (1986) explores a range of eight different metaphors that might describe organisations and one of them, the notion of organisations as machines I have already discussed earlier in this chapter. Morgan (1986) also refers to organisations as organisms, as brains, and as psychic prisons.

In considering organisations as organisms the links with biology and biological thinking are very clear. Morgan points out that:

> 'Biology classifies vital organisms into species, inquires into their geographic description, their lines of descent, and their evolutionary changes. What better description could there be of organisation theory since the 1950s?'

Further he adds that: 'Biological thought has influenced social and organisational theory since at least the nineteenth century'. He sees this as influencing the work of Mayo, Maslow, Argyris, McGregor, Herzberg and other leading psychologists and behaviouralists. He suggests that the influence of biology and biological approaches has affected the development of open systems theory which in turn influenced social psychology and organisational studies. Notions of organisational health, the life cycle of an organisation, and the affect of environmental factors all reflect the image of the organisation as an organism and the influence of biological thinking. Morgan (1986) also suggests that ideas of competition and collaboration are derived from different interpretations of the theory of evolution.

The image of the organisation as a brain is still in the very early stages of development (Morgan 1986). Yet, here again one may trace the scientific influences, in this case, they flow from cybernetics, biology and particularly brain research. Morgan writes:

> ' the brain metaphor helps us to appreciate that an organisation itself can be regarded as a cognitive system, embodying a structure of thought as well as a pattern of action.'

The notion of the organisation as a brain fits well with ideas of organisational learning and the concept of the learning organisation.

On organisations as psychic prisons, Morgan (1986) writes:

> 'This metaphor joins the idea that organisations are psychic phenomena, in the sense that they are ultimately created and sustained by conscious and unconscious processes, with the notion that people can actually become imprisoned or confined by the images, ideas, thoughts, and actions to which these processes give rise.'

This image of organisations draws heavily on traditional psychology and particularly Freudian theory and the work of the Tavistock Institute. It also suggests some reasons why so many organisations find it so difficult to change. People have become 'imprisoned' in the traditional view of organisations and organisation processes that they cannot easily escape even when an opportunity presents itself.

Mechanistic and militaristic images.

Many organisations are still viewed as machine -like and their language with its talk of inputs, outputs and control devices is that of engineering (Handy 1990). Thus the heartfelt nature of the common expression: 'I'm only a small cog in a big wheel.'

The language of the military machine devised by Frederick the Great still exists in terms such as 'force', 'officers,' 'ranks' and so on. Wheatley (1994) writes how many activities are described as 'campaigns', 'skirmishes', wars'. She describes how many organisations have 'rigid chains of command' and how rules and regulations are used as a defence against employees. Capra (1996) reminds us that computer scientists often rely on old traditional, militaristic, language, derived from the traditional world view, for example, in the use of such terms as 'command', 'escape', 'fail safe' 'target' and so on.

If organisations today are to be fit enough to survive and prosper in turbulent times then they will need to find new ways of thinking, and doing. There are some signs of changes taking place in the way organisations think and behave that is demonstrated through their language. Today there is 'talk of cultures and networks, of teams and coalitions, of influence or power rather than control, of leadership not management' (Handy 1990).

Senge (1992) recognizes the powerful influence played by language in the way we perceive the world and points out that its structure and development in Western cultures has encouraged linear thinking such that 'we think in linear ways, and we perceive the world linearly'. This creates real difficulties for managers as they tend to 'confront... complex, dynamic realities with a language designed for simple, static, problems.'

How far we are moving towards developing a new way of thinking about the world and a new way of envisioning, designing and experiencing in organisations will be indicated by the language organisations use and create. Today new words and new images are creeping in, but the trickle has yet to turn into a tide which will dramatically change things and overwhelm the classical, Newtonian, Cartesian derived paradigm.

3.6. Conclusion

Why has the classical, traditional scientific approach to the world been so powerful and for so long, such that it is now embodied in the rationalistic tradition of management theory? Winograd and Flores (1991) offer an explanation which states that the:

> 'rationalistic orientation... is also regarded, perhaps because of the prestige and success that modern science enjoys, as the very paradigm of what it means to think and be intelligent.'

There is much evidence to show that in the world of organisations the old models, derived from the scientific thinking of the 17th and 18th centuries still exist. Most have been modified, often structurally, or functionally, but their origins may still be recognised in the theory, the language and in the behaviours of people in organisations. As Wheatley (1994) states we continue to work in organisations 'designed from Newtonian images of the universe'. Managers manage by using reductionist approaches (separating things into parts); by devising complex planning activities based on the notion of a predictable world; and in believing that 'influence occurs as a direct result of force extended from one person to another' (Wheatley 1994). Thus in spite of the modernization programmes of recent years managers appear to to have a mindset 'similar to the Taylorist model developed at the beginning of the century' (Doz and Thanheiser 1993).

New notions are sweeping in, however, for as Merry (1995) points out, the end of the industrial era is also marked by the breakdown in the current, traditional scientific paradigm. Toffler, too (Prigogine and Stengers 1984) sees the decline of the great age of manufacturing and machines as offering a challenge to the mechanistic approach in science. He argues that we should not be surprised if the transition from an industrial society to one based on innovation and information produces a new scientific world view.

Further, during this century there has been a shift away from the mechanistic, reductionist approach in science towards a more holistic, organismic one (Capra 1996). The notion of the universe as a giant clockwork mechanism has been challenged over time and particularly by biologists and quantum

physicists in the 20th century (Toffler in Prigogine and Stengers 1984, Wheatley 1994). However, as with any period of upheaval and challenge the change has not been a smooth one and there have been many 'backlashes and pendulum swings' (Capra 1996).

Toffler in Prigogine and Stengers (1984) suggests that a new paradigm will emerge from the work of Prigogine and that:

> 'it shifts attention to those aspects of reality that characterize today's accelerated social change: disorder, instability, diversity, disequilibrium, nonlinear relationships (in which small inputs can trigger massive consequences), and temporality - a heightened sensitivity to the flows of time.'

If the scientific paradigm is shifting, and making way for a richer, more complex, more realistic view of the world - what of organisations? Wheatley (1992) can already see some of the new scientific ideas percolating into management theory, although the process has only just begun. A number of writers on organisations, notably Ralph Stacey in the UK and Margaret Wheatley in the US are using ideas and concepts derived from the new sciences of chaos and complexity to propose new organisational forms and behaviours in keeping with the present turbulent and demanding times. The next chapter discusses current approaches to organisational change and some of the current thinking on how to achieve this.

CHAPTER 4

CHANGE AND TRANSFORMATION IN ORGANISATIONS

4.1. Introduction

The world of the late 20th century is viewed by many as a period of massive change and upheaval brought about by increasing and parallel advances in technology, science and global economics (Handy 1990, 1994, Merry 1995, Morgan 1993, Wille and Hodgson 1991). Thus the topic of change is high on most organisational agendas. But, as shown in Chapter 3, far too many organisations and management theorists are still influenced by the old scientific paradigm and view change in a way that does not reflect its reality and which hinders the development of organisations more attuned to the times.

This thesis argues that if we are to renew and recreate our organisations ready for the upheavals of the next century then we should beware of old mindsets and most importantly start to explore other notions of the nature of change, particularly those drawn from the new sciences of chaos and complexity. We should consider the insights they offer us into the realities that surround us and use them to see the world anew and to create exciting and radical ways of recreating organisational life.

This chapter considers briefly some of the 'old' prevalent views of change and transformation and organisational theories and their shortcomings in order to contrast them with the newer approaches and theories which are emerging, particularly the learning organisation. Many of these have arisen from dissatisfaction with the traditional approaches and also a more up to date understanding of the nature of change. This leads on in Chapter 5 to an exploration of ideas on organisational transformation derived from the sciences

of chaos and complexity before suggesting in more detail particular possibilities suggested by specific ideas, such as fractals, the butterfly effect, self-organising systems and so on.

4.2. Considering Change

4.2.1. The Nature of Change

Change is not a single event nor a series of events and not a commodity it is a flowing, ever present 'part of the normal reality' (Dale 1994). The ancient Chinese saw change and transformation as an endless flow which was an 'essential aspect of the universe' (Capra 1983). As Capra writes:

> 'Change in this view, does not occur as a consequence of some force but is a natural tendency, innate in all things and situations. The universe is engaged in ceaseless motion and activity, in a continual cosmic process that the Chinese called Tao - the Way. The notion of absolute rest, or inactivity, was almost entirely absent from Chinese philosophy.'

Here is a view of change which was held many centuries ago yet it resonates very clearly with modern notions of change and transformation derived from the new sciences. Morgan (1986) refers to Tao and how the Taoist philosophy emphasises how the living world is moulded by a 'cycle of coming and going, growth and decay, everything being in the process of becoming something else.' Here are echoes of Prigogine's dissipative structures, and aspects of complexity such as biological evolution, emergence and complex adaptivity.

The ancient Greek philosopher, Heraclitus (quoted in Morgan 1986) too saw the

nature of the universe in a similar way to the Taoists. In about 500 BC he wrote:

> 'Everything flows and nothing abides; everything gives way and nothing stays fixed.... Cool things become warm, the warm grows cool; the moist dries, the parched becomes moist... It is in changing that things find repose.'

Through observation, reflection and deep thinking Heraclitus came to many of the conclusions being reached by the chaos and complexity scientists today. According to Morgan (1986) he believed that 'the universe is in a constant state of flux' and 'embodies characteristics of both permanence *and* change.'

Bohm's (Morgan 1986) theory of implicate and explicate order goes some way to explain why from many aspects the world appears to be stable yet is actually in a state of permanent change. Morgan suggests that until fairly recently science focussed on understanding the explicate or manifest order and has sought to explain it in linear cause and effect terms. This approach may explain why so many organisations hold traditional views of change. Senge (1992) points out that people need to learn to understand that change is a process and not a series of discrete events. Traditional science's concentration on the parts may explain why individuals and organisations have failed to understand and see the nature of the whole woven into the implicate order, as an eternal, creative process.

If one considers change through the eyes of a chaos scientist then one thinks of change as forming patterns and of flowing through time. Within the flow of change there will be flows within the flows, and eddies and ripples within these. These could well form fractal patterns over a long time period. Wille and Hodgson (1991) remind us that the philosopher Alfred N. Whitehead referred to us a 'human becomings' in a reflection of the perpetually changing nature of our

being.

On the next page Figure 4.1. illustrates the major differences between approaches to change derived from the traditional, classical, mechanistic view of change and those associated with a more modern and dynamic view of change derived chiefly from the new sciences of chaos and complexity.

4.2.2. Degrees of change

There is a general recognition that the nature of change may vary and its effects can vary in impact, magnitude and time span. A number of writers have sought to describe different types of change. They write of first and second order change, or first and second degree change, of transformation and self renewal.

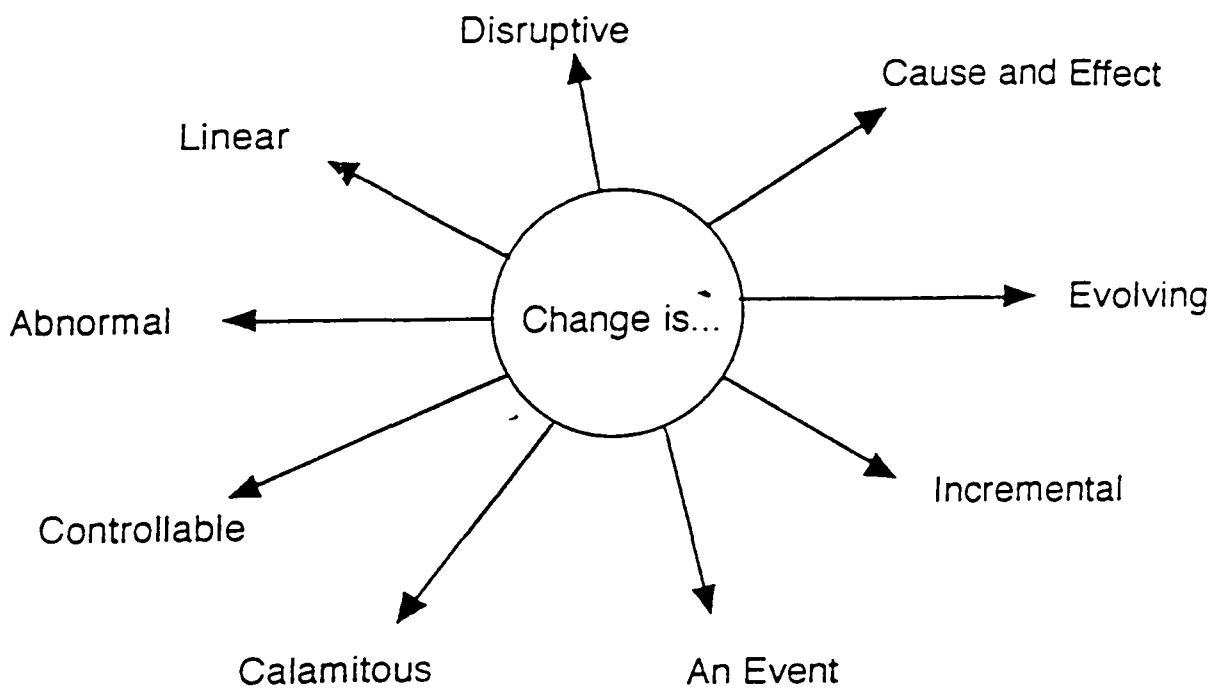
First Order Change

First order change tends to change things on the surface or in a limited way. Often an organisation does more or less of the same thing (Dale 1994). Merry (1995) describes first order change as consisting of: repetition of familiar behaviours; varying these behaviours in different ways; and trying out new behaviours as an adaptive process. Merry (1995) also refers to 'transitional' change which 'involves a move from one state or condition to another, e.g., from manual to automated operations.' This again, like first order change is limited in its approach. Morgan (1993) refers to superficial change or single - loop learning 'where the context remains invariant'. He writes:

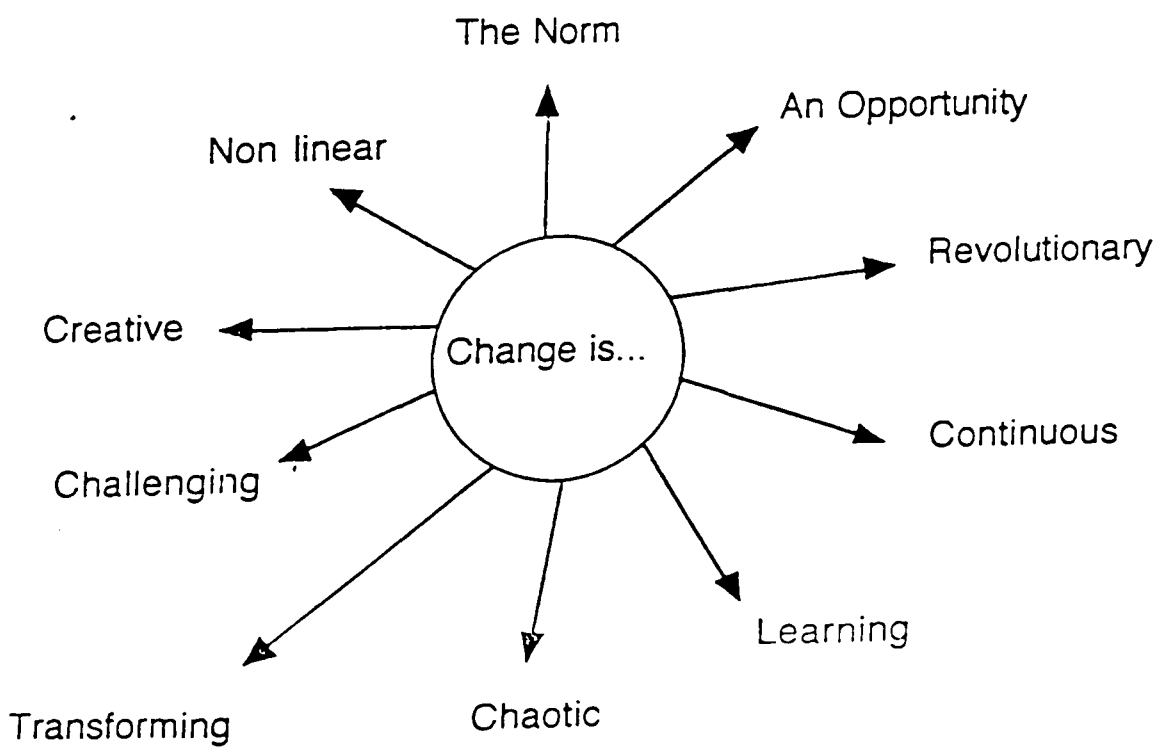
> 'It's the old problem of rearranging the deck chairs on the Titanic! Superficially, one can create the impression of making a lot of changes; but, at the base level, nothing of significance may have really changed.'

Figure 4.1. Perceptions / Views of Change

Traditional, Classical, Mechanistic Views of Change



New, Modern, Dynamic Views of Change



First order change was particularly suited to the early years of this century when organisations moved from periods of apparent change to periods of relative stability and the bureaucratic organisation was well adapted to this situation (Dale 1994).

Second Order Change / Transformation

Some writers argue, however, that many organisations in the turbulent, fast moving world of today need 'second-order' change which Dale (1994) equates with a 'sea change'. The term 'sea change' is used to describe a major transformation and is derived from the verse in Shakespeare's *The Tempest*.

> 'Full fathom five they father lies;
> Of his bones are coral made:
> Those are pearls that were his eyes:
> Nothing of him that doth fade,
> But doth suffer a sea change
> Into something rich and strange.'

Dale (1994) writes that a 'sea change' requires people to see the world differently and she defines it as a change where the structure / basic shape stays the same but the fabric changes. Thus in organisations that have experienced a sea change people do things differently and also see the world differently. She likens this to many of the public sector organisations where the same people work in the same place, providing similar services but 'working in totally different ways for new reasons.' She notes, however, that in many organisations the notion is limited to a one off major change event or process. It is important to note that major structural change may also be a factor in accomplishing second order change but it is unlikely to achieve it without other changes to the 'fabric'. Morgan (1993) describes major change as double loop learning where the context is also changed. Merry (1996) cites a number of

writers who suggest that most people and organisations are unwilling to make second order or transformational change chiefly through fear of the unknown and a desire to maintain the existing order.

Transforming change may be described as self renewal which (Nonaka 1988), echoing Prigogine's dissipative structures, describes as 'a process of dissolving, an existing organisational order and creating a new one.' It suggests 'the transfiguration from one state of being to a fundamentally different state of being, e.g., from a regulated monopoly to a market-driven competitive business' (Merry 1995).

Closed / Contained / Open-ended Change

Stacey (1992, 1996) sees three major kinds of change: closed, contained and open-ended. Closed change concerns a change or changes that are readily recognized and understood and contain a measure of predictability. For example, how the number of customers a company has had over a given period have changed, and how they may change in the future and how it will act accordingly. With contained change it is more difficult to understand evidence from the past and why, for example, a particular product has sold better than others, and how it will do in the future. Closed and contained change relate 'to developments that have short-term consequences. To the extent that short-term consequences are more or less repetitions of what has happened before,' (Stacey 1992). These, therefore, relate closely to notions of first order change. Open-ended change, however, is unique and has never happened in that particular way before (Stacey 1992). This is *real* change on a par with notions of transformation or renewal.

In Stacey's view (1992) managers need to consider all three forms of change if they wish to help their organisations survive. But he points out that open-ended change is 'qualitatively different' from closed and contained change and has to

be handled in a totally different way. In Stacey's view (1992) there are obvious links between the causes and the effects of closed and contained change and therefore their consequences can be predicted with some 'useful degree of accuracy.' This is the kind of change that is recognised and often looked for in most organisations as it still relates to a more traditional view of the world. In situations of open-ended change, however, Stacey (1992, 1996) claims there is no useful past experience to draw upon, no obvious links between cause and effect and lots of ambiguity - the future is unpredictable. This is a newer interpretation of change.

4.3. Change and Transformation - Approaches in Organisations

Wheatley (1994) expresses the sentiments of many managers and those in organisations today when she asks:

> 'Why does change itself, that event we're all supposed to be "managing", keep drowning us,...?'

In Wheatley's view managers feel out of control because they have failed to understand the 'deeper reality of organisational life, and of life in general.'

Wille and Hodgson (1991) point out most people were brought up in 'an era when science has dominated' and that many people believe that:

> 'Science provides the logical analysis of data and the ability to predict outcomes for the future.... Sophisticated techniques have been created to help predict what will happen and to ensure decisions are made at the right time....Project management is a science in itself.'

Stacey (1992) comments that the majority of Western managers have mind sets derived from the traditional scientific view which itself provides the foundation for vast numbers of management textbooks and education programmes. Thus most managers believe 'that long term-success flows from a state of stability, harmony, predictability, discipline, and consensus.' This state Stacey refers to as 'stable equilibrium'. The result of this mindset is that managers are 'confined to strategies of repetition and imitation' and believe success may be achieved through long term planning, strategic planning events, mission statements, monitoring of progress, and control systems, with senior managers setting direction and staying in command.

Durcan et al (1993) argue that in spite of the turbulent environments in which managers operate they still have not grasped the real nature of the changes going on and what this means for them. They describe how when managers are asked to draw out their visions of change they frequently depict a static type model. This usually involves moving from a 'stable position, via a short period of uncertainty, to a new and different, but again relatively stable position.' The notion that change is an event that disrupts the norm and, once it is over, things can settle back down again, very much reflects the old view of the world.

Cooksey and Gates (1995) argue that the 'static slice-of-life approach' leads to the creation of static management approaches which hinder and even sometimes destroy an organisation's effectiveness by hindering its ability to adapt to turbulent and chaotic events. Organisations still take 'snapshot pictures' of the world and behave 'like two dimensional flatlanders in a three dimensional world' (Priesmeyer 1992).

Many organisations attempt to cope with uncertainty by producing mission statements, strategic planning processes, new organisational structures and so on (Merry 1995). But as Priesmeyer (1992) writes:

> 'This is not a world of constants that can be captured with measures of singular, static performance like total sales, total profits, and daily production quantities; it is a world of dynamics.'

Cooksey and Gates (1995) contend that managers are not helped to manage change by the teachings of the management literature which is often based on organisational research which is 'conducted in unrepresentative, overly controlled contrived contexts'.

Change is still regarded as something that may be stopped or started at will and this reflects the mechanistic approach still found in the thinking and literature on change (Durcan et al 1993). A major example of this approach is Lewin's renowned model whereby change is introduced as part of an unfreezing process and then later refrozen in a stabilising process. This is based on the notion that organisations like living systems have homeostatic tendencies and therefore are always striving to maintain a steady state (Goodstein and Warner Burke 1993). Durcan et al (1993) consider this approach 'dangerously misleading' and to support their arguments they cite two examples in different organisations. In a large engineering company the production manager observed that they now need 'five to six years to bed down the new systems'. His unit was subsequently closed down as it was unable to meet the pressures of increasing competitiveness. In the other example a staff attitude survey in a multinational showed that staff felt that the pace of change was 'excessive, perhaps unnecessary' and many wanted a period of stability. Again a senior manager 'assured' them that the company having undergone substantial structural change now needed several years for things to settle down.

Durcan et al (1993) further describe the mechanistic approach to change as one which manages change in an incremental way within an existing organisational

framework or mindset in order to achieve a 'deliberate strategy', (Mintzberg 1989). They list four assumptions that reflect the mechanistic approach to change:-

1. Time is viewed as linear and sequential. Thus many theories of organisational change show the process as one of a series of 'logical, interrelated steps'.

2. That change is an incremental process of adjustment. That periods of transforming change are seen 'as abnormal shocks to the normality of incremental progress'. This assumption leads to the belief that it is possible to intervene in the organisational processes and produce the changes desired.

3. The concept of 'fit', or the notion of 'gap' are important. Both refer to the relationship between the organisation and its environment. The idea of 'gap', relates to the 'gap' between the current position of an organisation and its external environment. It reflects 'a semi-concealed Darwinian concept of gradual evolution and survival of the fittest'. But, it is now thought that changes occurs very quickly through random genetic changes which are in response to 'discontinuous environmental shifts.' (Gould & Eldridge 1977).

4. Change has a destination that is clear and therefore, with the use of appropriate skills and tools it can be reached. This is a 'closed' view of change that assumes that the future is predictable.

Durcan et al summarise what they see as the two main approaches to change as shown in Figure 4.2.

Figure 4.2. Views of Change - Durcan et al 1993

Opposing views of change	
Mechanistic	Radical / Dynamic
Incremental Evolutionary Linear Orderly Closed Within recipe	Transformational Revolutionary Circular / Spiral Chaotic Open Recipe breaking
Managing change	Creating change

The mechanistic approach neatly reflects the traditional scientific paradigm and leads to the notion of 'managing' change in the controlling sense. The new radical, dynamic approach mirrors the new ideas emerging from the changing scientific paradigm influenced by quantum physics and chaos and complexity.

West (1994) suggests that organisations need to reject the prevalent 'traditional rationalist mentality' if they are to learn how to survive. Cooksey and Gates (1995) too, suggest that organisational theory and practice needs to rethink the way things are perceived - to move away from the current restrictive linear approach and move to one which more accurately represents the dynamics of the real world.

Stacey (1992) writes:

> 'Recent scientific discoveries have shown that stable equilibrium is not a useful framework for understanding complex systems. These discoveries have revealed that the continuous creativity found in natural systems is driven by stable laws that generate

> specific kinds of instability within recognizable patterns. Nature uses this bounded instability in a positive way to generate variety and develop new directions... therefore, success comprises both stability and instability.

Thus, Stacey suggests, interpreting the world and organisations as being inherently stable (in the classical sense) is unhelpful in dealing with real change issues and that managers need to explore and understand the nature of ceaseless creativity and natural systems if they are to successfully support their organisation.

Morgan (1986) suggests that we will better understand the dynamics of change if we think of change in a new way. He refers to change as 'flux' and suggests that we will better understand flux if we consider it in three ways:-

1. as 'an autopoietic manifestation of our own actions'
2. 'as a network of mutual causality shaped by processes of positive and negative feedback'
3. as 'a dialectical process of unfolding contradiction'.

Morgan is drawing on ideas derived from the new biology and autopoiesis in particular, his understanding of dynamic systems and the unfolding nature of the explicate and implicate order.

4.4. Strategies and Theories for Organisational Change and Transformation

Stacey (1996) describes strategic management very generally as a feedback loop which is:

> 'essentially a process of decision-making, control and learning,

members of an organisation generate a sequence of actions in which they and others can usually perceive a pattern and it is this pattern that they and we call strategy.'

Through this an organisation determines how it will succeed and survive. Further, Stacey writes, an essential feature of the 'strategy game' is change.

4.4.1. Strategic Management - Mintzberg, Quinn et al

Strategic planning in Priesmeyer's (1992) view was developed in the 1970s primarily as a tool for senior management. The standard strategic planning approach was basically an analytical process which was carried out annually. It examined the organisation's mission, carried out internal and external analyses and a review of strategic issues in order to develop a strategic plan. In Priesmeyer's opinion this took an over simple approach and suffered from 'focusing on actual values rather than identifying patterns in the rate of change.'

Moncrief and Smallwood (1996) agree that the 1970s was dominated by a planning style of strategic management which gave rise to a range of analytical and planning tools designed to predict the future. Organisations believed that 'economies, markets and customers behaved logically and predictably'. It was believed that with the use of sophisticated strategic tools 'the right answer' for the future could be found.

During the 1980s the traditional approach to management which was a rational, sequential process 'reinvented itself as strategic management' (Turner 1996). According to Moncrief and Smallwood (1996) by then the 'visioning style' was the dominant approach to strategic matters. Visioning the future inspired many organisations to let go of some of the old tools, but too often the new visions were undistinguishable from the old mission statements and organisational

processes were hardly touched. Eccles (1993) describes how the 'grandiose planning vogues of the 1970s' came up against an unpredictable and uncontrollable reality and the paradigms of incremental and emergent strategy developed by writers like Quinn and Mintzberg were challenging the established view (Turner 1996).

Mintzberg and Waters - Deliberate and Emergent Strategies

Mintzberg and Waters (1989) developed the concept of 'deliberate' and 'emergent' strategies based on years of empirical research. Their model offers a range of approaches to strategic change each of which embodies 'differing degrees of what might be called deliberateness or emergentness'. It is important to recognise that they define strategy as 'a pattern in a stream of decisions'. They identify these 'streams' in order to investigate and explore the relationship between top level planning and intentions and what the organisations actually did. Deliberate strategies are realised as 'intended' strategies and emergent strategies are 'patterns or consistencies realized despite, or in the absence of, intentions.' Figure 4.3. overleaf is taken from Eccles (1993) and shows the different types of strategies observed by Mintzberg and Waters and their tendencies towards 'emergent' or 'deliberate.'

The table does not include the eighth form of strategy: imposed strategy. In Eccles' view as it was a strategy imposed from outside the organisation and therefore not the organisation's own. Deliberate strategies are more widespread but perfectly deliberate strategies are rare because they rely on predictability and order to proceed (Mintzberg and Waters 1989). Most real world strategies they contend fall somewhere along a continuum between deliberate and emergent.

The planned strategy relies on authority, elaborate and detailed planning and powerful controlling mechanisms. Here is an approach to change and to the

Figure 4.3. Mintzberg's Strategies from Eccles 1993

Strategy Type	Deliberate or Emergent
Planned	Highly deliberate
Entrepreneurial	Relatively deliberate, but can emerge too
Ideological	Rather deliberate
Umbrella	Partly deliberate, partly emergent (deliberately emergent)
Process	Partly deliberate, partly emergent and deliberately emergent
Disconnected	Can be deliberate for those who make them
Consensus	Rather emergent

future heavily influenced by notions of the organisation drawn from classical and scientific management and the bureaucratic organisation. The umbrella strategy relaxes some of the tight controls over people in the organisation used by the more deliberate strategies and intentionally creates the conditions for strategies to emerge. Here is recognition that responding rather than attempting to totally control is more effective. Similar to the umbrella strategy is the process strategy. Here the leadership controls the strategy making process while leaving the content to others.

The consensus strategy is of particular interest too for it is not driven by top management but rather evolves through the 'results of a host of individual actions'. It is a strategy evolving from learning. Mintzberg and Waters (1989) comment:

> 'In our view, the fundamental difference between deliberate and emergent strategy is that whereas the former focuses on direction and control - getting the desired things done - the latter open up this notion of "strategic learning". Defining strategy as intended and conceiving it as deliberate, as has traditionally been done, effectively precludes the notion of strategic learning... Adding the concept of emergent strategy, based on the definition of strategy

> as realized, opens up the process of strategy making up to the notion of learning.'

The concept of organisations learning from their actions as a strategic notion is a very powerful one which resonates with ideas developing from chaos and complexity and the underpinning concepts of the learning organisation. Moncrief and Smallwood (1996) describe this approach as one which is 'constantly sensing and reflecting on what was happening, drawing conclusions and lessons and experimenting with new ways of acting'. Here is a significant shift away from the 'more deliberate strategies' which tended to focus on 'central direction and hierarchy' towards the more emergent ones which 'open the way for collective action and convergent behaviour' (Mintzberg and Waters 1989). These approaches suggest that organisations are complicated, complex, interactive systems that are not so easily directed and controlled. They go a significant way towards recognising that they are not machines but are made up of collections of living, complex, adaptive systems.

Most organisations, Mintzberg and Waters (1989) point out, have aspects of both deliberateness and emergence and they conclude that organisations need:

> 'to walk on two feet... to direct in order to realise intentions while at the same time responding to an unfolding pattern of action.'

When Mintzberg and Waters talk of emergence do they mean the same thing as the notion of emergence spoken of by complexity scientists? The answer is yes and no. Yes, in the sense that something unplanned and unintended arises. No, in the sense that something greater than the sum of the parts arises. They are not talking of all the 'cells' in an organisation interacting spontaneously in order to carry out their functions and in the process creating something greater,

an organisational 'consciousness'. It is important to understand this distinction. Mintzberg and Waters' definition is not that of complexity science - but the interesting question posed is do organisations if they are complex, adaptive, systems manifest 'emergence' as understood by complexity science? I shall consider this question in the context of the Open University in Chapter 9.

Another significant point to note is the observation by Mintzberg and Waters (1989) that 'emergent strategy means, not chaos, but in essence *unintended order*'. What do they mean here? Again I believe that they use 'chaos' in the sense of uncontrollable happenings or changes which is very much the understanding of chaos which is popular in the management literature and spoken of by Peters and others. Interestingly, the 'unintended order' they speak of describes the kind of order that manifests itself clearly in self organising systems.

Quinn - logical incrementalism.

Quinn (1989) considers that change is introduced into organisations not by the use of 'text book approaches' and long range planning techniques but step by step in a way he describes as 'logical incrementalism'. This notion of change being introduced step by step suggests the influence of the Darwinian concept of gradual evolution as referred to by Durcan et al earlier in this chapter, but it is now thought that changes occur in major, random shifts. Goodwin (1997) points out too that Darwinian evolution explains the adaption of a species but not the creation of a species. In other words it explains micro evolution but not macro evolution. Does this mean that the changes observed by Quinn are of the first order, adaptions only?

Quinn (1989) believes that managers 'consciously and pro actively' work to bring about change and he sees a number of patterns as being dominant where change is successfully managed. These include:

1. Creating 'awareness and commitment - incrementally' through the development of informal networks, the testing of ideas, building awareness and support for change ideas, high level tactical shifts, widening political support, and overcoming opposition.
2. 'Solidifying progress - incrementally'. This is achieved through 'creating pockets of commitment', focusing, managing alliances, supporting champions, integration of key processes, identifying 'measuring and rewarding key thrusts'.

Throughout Quinn argues in favour of small step by step activities and the need for logic and also control. He suggests that managers wait until they have all the right bits in place if they want to be successful in bringing about change. But this ignores the fact that the world will not stand still and wait while they do it.

Quinn's reliance on approaches rooted in authority, complex analysis and planning suggests that 'logical incrementalism' follows a linear, sequential approach reminiscent of the classical scientific view of the nature of change.

Eccles

Eccles (1993) argues that notions of strategy as emergent or incremental have led to confusion between planning and action among the strategists. He states that the traditional view of strategy saw formulation and strategy and implementation as sequential. Whereas the emergent and incrementalist views (Mintzberg and Quinn) suggest that the two phases are concurrent. This symbiotic relationship clearly reflects the interwoven complexity of real life events. Eccles proposes that strategic change can take place quickly, especially when top management has considerable power and that planned, sequential change is more common than has been acknowledged. Change is seen as developing in a linear fashion and organisations as led by the 'head' with a dependent 'body' obediently following. This is an enormous

oversimplification of change within organisations and ignorance of the interactive complexity of living systems. Eccles' own model of the stages of evolution and implementation of strategy incorporates five elements: formulate, plan, assemble, implement, endorse. He writes that:

> 'what is being rejected is the fatalistic notion that the five elements are just mixed together as though no pattern, form, sequence or orderliness was present in the process of strategic change.'

The 'mixture' Eccles recommends is one that is designed and controlled by senior management. He is unaware of the patterning, order and forms that arise spontaneously from self organising systems. He has been influenced by the classical scientific world view and has confused control with order.

<u>More recent views</u>

Durcan et al (1993) point out that in recent years a number of writers have challenged the mechanistic approach to change. They refer to Tom Peters (1987) who challenged the notion of change as gradual and incremental. They refer also to Massarik (1990) who also finds the old approaches inadequate and who wrote on Lewin's Force Field Analysis:

> '"The "force field" once so neatly conceptualised by discrete and identifiable arrows, falls apart. Erratic turbulences embrace us...The task of high intensity diagnosis, therefore, becomes one of finding the way ... through the paradox of 'regularity within chaos"'.

Turner (1996) does not believe that either the traditional approach which assumes a predictable future and 'that action follows thought' nor the incrementalist approach which he views as essentially 'reactive' is now

adequate.

The concept of linearity has come under attack and there has been criticism too of the dangers of 'excessive fit'. Durcan et al (1993) refer to Richard Pascale who in *Managing on the Edge* (1986) argues that change is 'better seen as discontinuous or revolutionary and is often accompanied by a change in paradigm or recipe'. This moves away from earlier Darwinian analogies, for Pascale argues, that 'excessive fit' can leave an organisation too vulnerable to major environmental shocks - shocks which can move an organisation from a position of complete fit to one of total lack of fit in a very short time.

Durcan et al (1993) note that a number of writers have described the need to change from a 'transactional leadership style' suitable for incremental style change to a 'transformational style' needed to deliver revolutionary change.

Other writers have developed anti-rationalist models which emphasize the roles of ambiguity and chaos within organisations (Nonaka 1988). Nonaka refers to Weick (1987) who argues that organisations may have to devise strategic change processes which become chaotic in order to accurately reflect the chaotic nature of their environment. Nonaka also refers to March and Olsen (1976) who:

> 'attempted a conceptualization of the decision-making process of an organisation from the point of view of "organized anarchy" and emphasized .... trial and error rather than the analytical approach'.

However, Nonaka does not consider that these 'anti-rational' theorists have fully developed and explored 'the basic principles of imbalance dynamics' which lead to the more radical notions of self-organisation and self-renewal which are emerging from the new sciences.

4.4.2. Learning and the Learning Organisation

In recent years there has been considerable interest in the notion of the learning organisation / company as a way of achieving organisational change. Handy (1990) writes that changing is 'only another word for learning', and therefore 'theories of learning will also be the theories of changing.' This aligns neatly with the notion of the learning organisation / company. Wille and Hodgson (1991) talk of transformation by learning and Dale (1994) considers that organisational learning is inevitably linked to organisational change. Pedler et al (1991) write that a learning organisation is an organisation that 'facilitates the learning of all its members and continuously transforms itself'. The essential tenet on which many interpretations of the learning organisation or learning company is based is that through learning an organisation is able to adapt, develop, transform and change to meet the needs of itself, its people and society. Here learning is the key to transformation.

This is very much a holistic approach to strategy and to learning which sees learning linking individuals and groups in an organisational web that responds, reacts and transforms in an ongoing process. As Leonard Barton (1994) points out any manager considering establishing a learning organisation will need to adapt a holistic, systems thinking approach. This means focussing less on specific events and more on the underlying patterns and movements for change (Senge 1994). This is very different to previous notions of change and of organisational learning. Then learning was mainly undertaken in discrete chunks related to specific organisational skills, tasks and processes and only indirectly connected to the overarching structure of the organisation. Further, once the skill was acquired or the task learnt then the learning process was deemed to be over. Learning was seen as a neat, controlled, self contained entity not as a continuous, stimulating, enriching, flow of experience. This

attitude very much reflects the traditional approach to employees discussed earlier, and traditional notions of change and the world order. Durcan et al (1993) contend that the mechanistic approach attached value to accumulated learning arising from an organisation's experience whereas more recent models of learning stress the importance of stimulating the organisation's capacity for learning, learning from new experiences, its own and others, on the need to experiment and to reflect, in order to speed up the learning process.

Merry (1995) refers to Montuori (1993) who considers that most learning that takes place today is non reflective, 'maintenance' learning'. Montuori writes:

> 'It is incapable of questioning its own assumptions and of engaging in change but "more of the same". Unable to question its own origins and guiding framework, maintenance learning allows us to learn only within a preestablished framework, but does not allow for free enquiry.'

This is akin to 'single loop' learning (Morgan 1886) whereby learning is limited and routine and Senge's (1994) 'adaptive' learning which is about coping. This kind of learning resonates with the traditional view of training within organisations where all training activities tended to focus on the solution of particular problems and the acquisition of specific skills. Training was viewed as a tool for managers that 'fixed' the organisational machine or tuned it up so that it ran more efficiently. Many notions of learning were skill based, task orientated and routine. People did not learn to learn nor to challenge their own mental models. This kind of learning will not introduce any real change.

The learning organisation however, contains not only 'single loop' or 'maintenance' learning but also Morgan's (1986) 'double loop' learning whereby people are able to question their own assumptions, where they learn

to learn and to self organise. This is Senge's (1994) 'generative' learning which requires the skills of reflection and inquiry. It encourages people to develop new mental models of the world and to become creative as well as adaptive. Merry (1995) describes this kind of learning as, 'evolutionary learning' and with reference to Banathy (1993) points out that it 'empowers us to change shape', to reconsider our viewpoints and to cope with the unexpected.

In times of massive, rapid change then both maintenance and evolutionary learning are needed (Merry 1995). Evolutionary learning is in Merry's view key to learning to function on the edge of chaos and I shall refer to it again in Chapter 9.

Durcan et al (1993) write:

> 'There is also recognition that the destination may be less important than the learning, or the process of learning to learn, that takes place on the journey.'

Here is change viewed as a continuum and learning as an ongoing process that is valuable in its own right. Wille and Hodgson (1991) refer to Pedler et al (1989) who see organisational transformation achieved by an ongoing process which uses the 'outcomes of individual learning to change the culture and methods of the company'. These are changes developed from within rather than being the result of external intervention. West (1994) too sees transformation through learning as the key to the new way in which organisations may change. She quotes (Pedler et al, 1988) who state that this is achieved by giving greater emphasis on the process whereby 'the organisation develops itself rather than being changed by outside intervention'.

Turner[1] (1996) refers to Bettis and Prahalad who maintain that organisations are most likely to experience learning when they are removed from their point of equilibrium. This links to Handy's notions of change and learning and reflects, as Turner observes, 'an important divergence from traditional approaches to strategy.' Further it relates to the notion that creativity flourishes at the edge of chaos or in conditions far from equilibrium.

Many of those who support the notion of a learning organisation do so because they believe it will prove an effective way of meeting corporate objectives. For example, Dale (1994) writes:

> 'The purpose of this process of transformation, as a central activity, is to enable the company to search within and without for new ideas, new problems and new opportunities for learning, to exploit a competitive advantage in an increasingly competitive world.'

Prahalad and Hamel (1990) conclude that the businesses that have been most successful at adapting to change have been those where the development core competencies has been actively pursued, for they are the collective learning in the organisation. Further, they are 'the wellspring of new business development' and should 'constitute the focus for strategy at the corporate level.'

It is important to note that organisational transformation is different from organisational development which was a common term in the 1960s and 70s (Dale 1994, West 1994). They observe that OD was used to describe a range of processes and activities designed to improve the way people worked together and handled change - and usually involved the intervention of external

[1] No reference is given by Turner.

consultants. OD focussed on 'clarifying goals, negotiating roles, exploring group dynamics' and improving team relationships and was concerned very much with organisational dynamics with a tendency to focus on 'an area or point of change' (Dale 1994). She claims that the recessions since have made organisations focus more on the 'task / business requirement' She also writes on the need to be proactive and to control change. Here is the influence of the old scientific paradigm creeping into modern views on organisations and the way they change themselves.

4.5. Conclusion

This chapter has looked at some of the mainstream approaches to managing change notably ideas on deliberate and emergent strategies (Mintzberg and Waters 1989), logical incrementalism (Quinn 1989) and the learning organisation. How much these ideas and theories influenced the New Directions change process will be considered as part of Chapter 8. This chapter will also consider the influence on the programme and its participants of understandings of change and the change process.

Many people still actually believe that organisational decisions are made in a rational planned way (Dale 1994). She writes:

> 'Rational decision-making suggests that an organisation decides its long-term goals, works out what needs to happen to get there, and then starts to take action.'

Here is the influence of the old, classical scientific tradition with its emphasis on the rational logical processes and its belief in predictability and a predetermined outcome. In reality, however, most people muddle through, but this too is not an

approach that will be sufficient in dealing with 'the new reality' Dale (1994).

Wheatley (1994) believes that we have just begun the process of 'discovering and inventing the new organisational forms' for the 21st century and that we need to let go of the old ways of thinking and our ideas on what is effective and what is not. We must she states 'learn to see the world anew.' This theme of 'seeing anew' is echoed by Morgan (1993) who writes:

> 'the challenge is to open new windows on the world, to create new ways of seeing that can lay the basis for new ways of acting.'

This thesis avers that using insights from the new sciences can greatly assist in developing a new way of interpreting the world and in devising real life approaches that may work in changing organisations. It is possible to think of the learning organisation approach as a conscious attempt to develop a new way of thinking about organisational life and it is in many ways an evolved transitional approach which resonates strongly with both old and new attitudes to change. I would suggest that many organisations and their managers are ready for a transitional approach to change that is more radical and dynamic than that of the learning organisation and the use of ideas and theories from the new sciences make this a possibility. These ideas and the notion of this kind of transitional approach are explored further in later chapters. The next chapter looks at some of the ways in which insights from the new sciences may be used to transform and recreate organisations.

CHAPTER 5.

TRANSFORMING ORGANISATIONS USING CHAOS AND COMPLEXITY

5.1. Introduction

This chapter describes how ideas and principles derived from the new sciences of chaos and complexity, described in Chapter 2, suggest new ways of understanding and managing organisations and how we may move forward using this new way of seeing things. First of all, Sections 5.1., 5.2. and 5.3. describe in general terms these new approaches and what they may mean in terms of organisational renewal. Then the subsequent sections describe how different features such as fractals, strange attractors, and self organising systems suggest new ways of considering change and transformation in organisations.

It is important to recall the new understandings of change as discussed in Chapter 4, where life is seen as an never ending, unfolding flow of events. As organisations are made up of dynamic living systems then they too are part of the natural order and continually unfolding and changing. But how well do they do this and how well do they adapt to this unceasing flow with its many turbulent eddies? Do management and strategic approaches based on a more static and stable view of the world impede or weaken an organisation's ability to adapt or renew? This thesis suggests that they do and that it is only through a better understanding of the 'real world' that organisations will evolve to a higher level of adaptability and survival. This is another reason why this chapter takes a closer look at the interpretations and insights chaos and complexity offer us into the 'real' organisational world.

A number of writers are now looking to the new sciences of chaos and

complexity as a way of better understanding the structure and the dynamics of modern organisations and coming up with ideas and interpretations for designing and creating organisations that suit our times. These writers, like Stacey, Wheatley, McMaster, Nonaka, and Merry did not develop their ideas from organisation theories but drew on principles emerging from the new sciences. Nonaka (1988), for example, draws on the work of Ilya Prigogine and his work on dissipative structures and the notion of 'order through fluctuation' or 'order out of chaos'. Stacey (1996) too refers to the work of Prigogine when he explores systems dynamics and the nature of self-organisation in organisations. He draws on the writings of Kauffman, Gell-Mann and Waldrop. He writes that understanding the dynamics of complex systems provides 'a fundamentally different model through which to interpret business behavior and design innovative management actions' (Stacey 1992).

Priesmeyer (1992) asserts that organisational goals and objectives are derived from linear thinking and that human activity is essentially nonlinear. Thus the study of non linear systems is applicable to organisational studies and can promise a 'fresh assessment of the strategic planning process'. McMaster (1996) considers that developments in the new sciences are suggesting new ways of looking at organisations, at structures, communications and creativity.

Wheatley (1994) contends that there is every reason to believe that nature's principles apply to human organisations. While Merry (1995) asserts that all human and social systems are open, far-from-equilibrium systems and that to try and understand them in a mechanistic way is bound to fail.

Nonaka (1988) talks of the need to negate 'the balance-orientated' theories of organisations which are so dominant and to replace them with the concept of self-renewal derived from self organisation which arises from chaos and dissolution.

5.2. Chaos

Berreby, (1996) talks of the attraction of chaos theory being the way it mirrors real life and reflects the complexity, the uncertainty and the paradoxical nature of life itself and the new realities of today's organisations.

Cooksey and Gates (1995) point out that:

> 'Chaos theory forces us to alter our focus from the expectation that an equilibrium (change-free) state is ultimately achievable to an expectation that continuous change will always be required' .

Wille and Hodgson (1991) comment:

> 'The more we move our organisations into periods of fundamental change, the more we are managing chaos. Those of us who prefer the comfort of precise prediction either have to leave now or reject the old predictive way in favour of the new flexibility, which adapts to the new and the unexpected.'

Nonaka (1988) suggests that an understanding of chaos science widens the spectrum of options and forces the organisation to seek new points of view. He believes that if an organisation wishes to transform or renew itself then it must keep itself in a 'non-equilibrium state'. In his view the paradoxical nature of chaos in relation to order and disorder has been ignored by the management theorists.

Cooksey and Gates (1995) write that:

> 'Moving beyond the constraints of linear models into the domain of non-linear dynamics and chaos theory may lead us to consider behavioural complexity as something we could ultimately fully understand rather than something we must simplify and control in order to account for some of its variance.'

Further, Cooksey and Gates (1995) state that:

> 'Chaos theory forces us to alter our focus from expectation that an equilibrium (change - free) state is ultimately achievable to an expectation that continuous change will always be required.

Stacey (1992) is quite clear about the contribution an understanding of chaos can make to organisations and states that:

> 'nonlinear dynamics and chaotic behavior apply literally to human business systems; they are not simply an analogy or a metaphor. If managers wish to adopt a scientific approach to understanding their organizations, they must now take account of the far-from-equilibrium behavior of nonlinear feedback systems because organizations are just such systems.'

There are major implications for strategic activities when one considers the chaotic and nonlinear nature of organisational systems (Stacey 1992, 1996). Stacey (1992) observes that the current 'received wisdom on strategic thinking is primarily an intellectual exercise'. It involves information collection, complex analytical processes and the forecasting of the future. To adopt such approaches is to consider the future behaviour of an organisation's systems as predictable when we know this is not the case. Stacey suggests that trying to

predict the future is 'a pointless exercise' and that successful and innovative organisations adopt a different approach. They develop a strategy 'based firmly on the qualitative nature of what is happening now and what has happened in the past.' They focus on 'anomalies in the current situation' and generate 'new perspectives' on the past and the present. This means exploring problems and opportunities in a fresh way that seeks out 'potential and possibility'. According to Stacey (1992) it was this approach that enabled Alan Sugar to move ahead and for Federal Express to develop a more effective delivery system.

Nonaka (1988) suggests that chaos may be created in an organisation either by the external environment or by the organisation itself taking action to create it. He suggests that an organisation using chaos to transform itself deliberately generates internal chaos but linked to the external environment. He bases his ideas on observation of transformation or self-renewal in Japanese firms and proposes the following actions to generate self-renewal:

1. The creation of chaos: this may be generated by the presentation of a strategic vision that offers 'strategic ambiguity'. He defines this as a concept that offers broad direction and plenty of scope for 'freedom of interpretation' or ambiguity. This encourages creativity within the organisation and the more passionate and aroused people are by the strategic vision the longer they will be energised to create ideas and information designed to solve the ambiguities. Additionally, managers should ensure that new information is continuously entering the organisation. This will create fluctuations, as will the bold use of new technologies and networking with customers and other organisations. The two chief ways of creating chaos or fluctuations are essentially strategy driven, but an organisation by its structure, design and processes can encourage and allow managers to be challenging and creative and foster 'creative conflicts' between departments and groups. It will also encourage movement between areas and roles, promote 'creative dialogues' regardless of status, and allow experimentation.

2. Amplification of fluctuation: this process seeks to stimulate the creative activities of an organisation by the creation of a crisis and so amplify chaos by 'focusing on contradictions'. This should stimulate new ideas and approaches though in some cases it can lead to a company's disappearance! Nonaka quotes a manager from Honda who states that such an approach is like putting the people on the second floor and telling them to jump, or else. This example, seems to be pushing the concept to an unacceptable extreme. It may work in the Japanese context but it is doubtful that it would transfer successfully to the Western World which is conditioned by other, possibly less submissive, cultures and traditions.

3. The stimulation of 'dynamic cooperation' within the organisation 'for resolving problems': this process encourages employees to change their point of view and when this happens 'a dynamic cooperation' emerges. The key to encouraging this cooperation are self organising teams sponsored and protected by senior management.

4. The first three processes were designed to promote active information creation: this process is concerned with changing accumulated information into knowledge. Nonaka writes: 'An evolving organization must be an organization that continues to learn.'

Nonaka (1988) argues that the flow and creation of information is the bedrock on which organisational renewal using chaos or fluctuation is founded. He writes:

> 'An organization must consider what kind of chaos to create, when and how to start a self-organizing movement, where to have convergence, and when and where to recreate what kind of

> chaos. Key individuals within the organization and individuals belonging to a self-organizing team are making these decisions or are serving as a "trigger" for this continuous process to take place.'

Chaos reminds organisations of a few guiding principles which Wheatley (1994) lists as:

> 'guiding visions, strong values, organizational beliefs - the few rules individuals can use to shape their own behavior. The leader's task is to communicate them, to keep them ever-present and clear, and then allow individuals in the system their random, sometimes chaotic-looking meanderings.'

Priesmeyer (1992) suggests that organisations should establish Centres for Chaos and proposes that they 'embark on a mission to find patterns of organisational activity that are currently hidden and undiscovered.' In his view organisations do not yet have the tools for nonlinear analysis and he points out the learning value that would accrue from developing and using models derived from chaos theory.

5.3. Complexity

The implications of complexity science for organisations are huge because complex systems are unpredictable and 'the certainties of the "command and control" approach to management no longer hold true' (Battram 1996).

Turner (1996) writes that complexity theory challenges existing views of strategy

that embrace concepts of mission, vision, leadership, and instead emphasises the value of process and 'organisational dynamics at the expense of content and analysis'. (Turner 1996).

McMaster (1996) considers that understanding complexity science and its applications can enable us to develop simple rules or principles with which to interpret and understand living systems, including organisations.

Stacey (1996) compares complexity theory with the 'machine perspective' of organisations which followed the old command and control model, and with the newer organic model of organisations which sees organisations as 'chance survivors' or the 'intentional creation of charismatic leaders who somehow managed to foresee the environment they had to fit into and persuaded the rest of us to do what was required in order to realise that fit.' Both these approaches in Stacey's view, assumed some measure of control and certainty of direction. Complexity, he avers, offers a uniquely different approach to strategic management. He writes:

> 'The science of complexity leads to a diametrically opposed perspective in which disorder plays a vital role, in tension with order; in which people do not know where they are going over the long term, but through interaction develop, discover, and create a new direction through their self-organising interaction. The result emerges without prior shared intention. This is a never-ending process in which we all play a part, and in which the role of our leader is much more to contain the anxiety it generates than tell us what to do.'

As introduced in Chapter 1, Stacey (1996) has developed a 9 point theory of organisation based on complexity theory. This is used later as a theoretical

framework for considering organisational change. It is as follows:

1. All people, organisations and environments are 'webs of nonlinear feedback loops' that connect to each other by 'webs of nonlinear feedback loops'.

2. These nonlinear feedback systems are able to operate in 'states of stable and unstable equilibrium, or in the borders between these states, that is far-from-equilibrium, in bounded stability at the edge of chaos'.

3. 'All organisations are paradoxes.' They are pulled towards stability by control processes, human needs for security and stability, and adaption to the environment. But they are also pulled to the opposite extreme of instability by the pull of organisational divisions and decentralisation, human needs for excitement and innovation, and remoteness from the environment.

4. If an organisation is pulled into stability it will fail because it will ossify and be unable to easily change itself, but if it is pulled into instability it will disintegrate. Success lies in sustaining an organisation in the borders between stability and instability. '

5. 'The dynamics of the successful organisation are.. those of irregular cycles and discontinuous trends, falling within qualitative patterns, fuzzy but recognisable categories taking the form of archetypes and templates.'

6. The successful organisation because of its internal dynamics faces 'completely unknowable specific futures.'

7. Agents (people) within the system (organisation) are unable to control the long term future, they cannot use 'specific frameworks to make it successful', they are unable to apply traditional, analytical, long term planning methods and controls to the long term future only to the short term.

8. 'Long term development is a spontaneously self-organising process from which new strategic directions may emerge. Spontaneous self-organisation is political interaction and learning in groups. Managers have to use reasoning by analogy'.

9. This is how 'managers create and discover their environments and the

long term future of their organisations.'

Berreby (1996) describes the paint spraying operation at a General Motors plant in Fort Wayne, and cites it as a way in which complexity theory is being effectively used in business. By using an approach which reflects the way in which complex self organising systems work GM has saved 1.5 million dollars a year.

Berreby (1996) quotes Chris Meyer a partner at Ernst & Young who believes that complexity points the way to how we shall view the management of organisations in the future. In Meyer's view the current way in which most businesses approach their operations by attempting to control a number of key variables is 'a grotesque oversimplification' of reality. In his view: M.R.P.(Manufacturing Resource Planning) and strategic planning are 'a disaster...This is not what people really do.' In his view 'simulations from complexity have the great merit of feeling like real organisations with real people in them.'

5.4. Using Ideas from Chaos

5.4.1. The Butterfly Effect - Sensitive Dependence on Initial Conditions

The Butterfly Effect has always been a well known phenomenon as the folk rhyme - 'For the want of a nail.... the kingdom was lost', testifies. But what of its more sophisticated interpretation in chaos science and its implications for organisations? Handy (1990) notes that it is often the small changes in our lives which make the biggest difference and that this is the case in organisations too.

Wheatley (1994) agrees it does not take large numbers to create change and

that in turbulent conditions creative people can each make a significant impact. This is because 'a lone fluctuation that gets amplified by the system' (Wheatley 1994). This is confirmed by the works of Briggs and Peat (1989). Mcnamara (1993) agrees that the Butterfly Effect can have applications within organisations, and that the actions of one person can transform an entire organisation. Further Wheatley (1994) writes that:

> 'These changes in small places, however, create large-systems change, not because they build one upon the other, but because they share in the unbroken wholeness that has united them all along. Our activities in one part of the whole create non-local causes that emerge far from us.....because unseen connections will create effects at a distance, in places we never thought.'

She notes too that this model of change - 'matches our experience more closely than our favored models of incremental change'. Stacey (1992) too comments that a system is highly responsive to small changes. This is particularly so when a system is far from equilibrium. Tiny disturbances in the system are amplified in such a way that completely different and completely unpredictable behaviours emerge. As Stacey points out, any clear connection between cause and effect is lost.

Cooksey and Gates refer to Hames (1994) who argues that chaos theory:

> 'emphasizes the potential significance and impact of seemingly minor changes on the organisation at large. One person *can* affect the whole and that person need not be in a formal leadership position within the organization.'

The linear, simplistic, approach to organisational issues leads to a common

assumption that the same methods and approaches will work with everyone more or less effectively. But as Mcnamara (1993) writes, sensitive dependence on initial conditions suggests that it is not possible to copy the results of organisational initiatives and successful models as 'tiny variations in the initial conditions can lead to widely diverging results.'

Dale (1994) describes another manifestation of the Butterfly Effect:

> 'Life within one organization may be similar to life in another, but it will also be different. Each organization is unique. This uniqueness emanates from each organization's culture, which grows and changes during the life of the organization. It is influenced by its original and developing purpose, the people in membership and those with influence on the organization.'

Dale argues that if each organisation is unique with its own culture which has changed and developed over time - then the organisation must be capable of learning. As already discussed in Chapter 4, effective change and learning go hand in hand. Thus Dale's argument demonstrates a link between chaos principles and learning organisation concepts.

5.4.2. Strange Attractors

Attractors can be the basis of a new approach to organisational change (Battram 1996). McMaster (quoted in Battram 1996) suggests that the notion of an attractor is more helpful than current ideas of leadership and commitment. He describes how a project team once set up will either flourish or die dependent upon certain conditions, particularly leadership and commitment to the project. He writes:

> 'Complexity theory suggests that the energy and information available will flow towards and around "attractors". These attractors will create positive returns,... they will continue and even build on their own if they are sufficiently strong and function within the system. The attractors may be values, principles, goals, theories, emotion - many things.'

He then adds that a person with a clear sense of purpose and a lots of energy can be an attractor and in this sense the right person may make a successful project leader. If and when the team is able to replace this person as an attractor with attractors of their own then it can continue without a leader.

Wheatley (1994) contends that meaning behaves like a strange attractor. She describes how employees saw that giving a personal meaning to their working life was the only way out of the turbulence. This she has seen demonstrated on many occasions. In times of organisational upheaval people need to be told why - this helps to develop meaning. Meaning or purpose helps as a 'point of reference' - and enables us to make decisions and to carry on living and working.

Cooksey and Gates (1995) suggest that work performance will constantly change and that we could think of it as behaving like a strange attractor as we follow it through time. 'For most people, performance will never trace the same path twice and it will never settle down to a fixed point or level.' According to Cooksey and Gates we are all affected by sensitivity to initial conditions. They illustrate their idea by using the idea of a marble in a bowl. A marble represents the individual and the 'interactive nexus of *Organisational, Social,* and *Work* systems' is a 'rounded-bottom *bowl*'. The surrounds of both the marble and the bowl constitute the '*Environmental* system'. They then illustrate several trajectories which the marble might take as it rolls around the bowl, having been

released at a point at the top edge.

> 'The marble's (the individual worker) path is sensitive to initial starting conditions and to changing conditions of the marble, the bowl (analogous to the Organizational, Social, and Work systems) and the atmosphere and other environmental factors which influence the state and location of the bowl and marble (analogous to the Environmental and some aspects of the Social system).'

They map out four possible models of behaviour and conclude:

> 'all of the representations ... the paths traced and the performance spaces mapped would change with changes in various conditions. In terms of the marble and bowl analogy, different release points of the marble along the bowl's edge will generate different trajectories; changes in bowl surface texture, marble texture, atmospheric moisture content, gravity strength, air pressure, bowl tilt, dust or a crack on the surface of the bowl will also produce trajectory variations. This is the hallmark of a chaotic dynamic system whose behaviour is both sensitive to initial conditions and responsive to subsequent system changes.'

The marble and the bowl analogy serves to illustrate the complexity of the individual's relationship with an organisation and how this affects attempts to bring about predictable changes in processes and behaviours.

5.4.3. Fractals

Merry (1996) suggests that considering the fractal nature of the world, as a

never ending, upwards and downwards scale of repeat patterns can help us to reinterpret our organisations and their contexts. Mcnamara (1993) too explores the concept of applying fractal principles to organisations and suggests that the use of fractals may give us 'better insights into the structure, shape and dynamics of organisations.' He suggests that each level in a fractal organisation 'has the elements of the whole organisation within it; the overall structure is defined by complex interacting dynamics rather than by simple mechanical hierarchies.'

Wheatley (1994) believes that fractals have a direct application for the management of organisations and that the best organisations have a 'fractal quality to them'. There is a quality of behaviour wherever one looks - there is trust - there are similar behaviours at all levels. Further,

> 'Fractal organizations... have learned to trust in natural organising phenomena. They trust in the power of guiding principles or values, knowing that they are strong enough influences of behavior to shape every employee... These organizations expect to see similar behaviors show up at every level in the organisation because those behaviors were patterned into the organizing principles at the very start.'

Wheatley (1994) also contends that when an organisation listens to different interpretations of information then it becomes amplified, feeds back on itself and rather like fractals 'eventually reveals the complexity hidden within the issue'. From this new levels of understanding, more creativity may emerge. Vibrant organisations do two things: they create new information and they feed back existing information.

Using fractal principles it is possible to see an organisation's communications

system afresh and to reenergise its flows. Wheatley (1994) gives an example of how to do this when she describes the 'Future Search' conferences she was involved in. She describes how delegates generated information on all aspects of the organisation's life and how new connections and new flows were encouraged. After a few days the delegates self organised 'weaving all that information into potent visions for the future'. Rather like a fractal where information fed back upon itself creates 'elaborate levels of definition and scaling', the conference needed only some information to feedback and generate richness.

5.4.4. Order within Chaos

Chaos is not as disorderly as first appears, it has an order and a structure of its own and also within the chaos zone there are also patterns of order or stability. Stacey (1992, 1996) refers to chaos as 'bounded instability' and as 'a combination of order and disorder in which patterns of behaviour continually unfold in irregular but similar forms'.

What does all this mean for managers and organisations? It has major implications for the way we view change and our notions of order and disorder which we have linked so closely to control and notions of cause and effect. It means that managers need to think about change and transformation in new ways and to prepare for and to expect the unexpected.

Durcan et al (1993) suggest that we need to understand organisations in terms of order and disorder as something that cannot be controlled but is often created. In some extreme contexts, they argue, any attempts to control or create will inevitably fail. What is needed Stacey suggests are new mental models and fresh approaches based on the real world not a textbook model.

Nonaka (1988) states that there cannot be 'self-renewal without dissolution and creation of order'. So paradoxically, order and disorder both exist and create their own kind of order. Wheatley (1994) comments:

> 'While we have lusted for order in organizations, we have failed to understand its true nature.'

Wheatley (1994) suggests that organisations have sought order in the buildings they have erected, in plans, in organisation charts, job descriptions and so on. Managers have done this because, in Wheatley's view, they have confused 'order' with 'control'. She points out that the history of management is 'defined in terms of its control functions.' But, she avers, if we think of organisations as machines then control seems sensible. She suggests that organisations need to get away from ideas based on control and instead should start to look for ways of creating a new order based on an understanding of the true nature of order and its relationship with disorder. Battram (1996) echoes Wheatley when he writes with reference to modern notions of order:

> 'Order isn't order, it's predictability and stereotypical behaviour'.

5.4.5. The Edge of Chaos

Turner (1996) writes that organisations respond more effectively to change if they are not perfectly in tune with their environment 'but poised on the "edge of chaos"'. Stacey (1996) observes that only when systems, and therefore organisations, are pushed to 'the edge of disintegration' are they capable of creativity and innovation.

Brian Goodwin (in Coveney and Highfield 1995) states that:

> 'the edge of chaos is a good place to be in a constantly changing world because from there you can always explore the patterns of order that are available and try them out for their appropriateness to the current situation.'

In designing organisations and organisation systems, Merry (1995) echoes Kauffman (1996) and suggests that we learn how to balance them on the edge of chaos. A system poised on the edge of chaos is neither too rigid so that is ossifies and dies, nor too chaotic such that it disintegrates into disorder and anarchy. In other words in this phase systems are neither coupled too tightly, nor too loosely. For if the 'coupling' in the system is too tight then any major change in one part of the system will impact significantly on the rest of the system. This or any 'outside perturbation can cascade the system into a random, dynamic, super critical deeply chaotic state'. On the other hand if couplings in the system are weak then there is little chance of change and 'an ordered static, subcritical state'. What does this mean for organisations? Merry (1995) suggests that if things are too tightly controlled then an organisation does not benefit any more than if it is too loosely connected. Should an organisation go into a chaotic state then people work at cross purposes and the organisation fails to be effective. A system or an organisation balanced on the edge of chaos is:

> 'poised in a dynamic balance with sufficient nonlinear freedom to enhance creativity, novelty, entrepreneurship, risk taking, experimentation, and discontinuous change while not drowning in totally chaotic confusion and uncertainty'.

Waldrop (1994) suggests that big American automobile firms were so rigidly controlled and so 'locked in to certain ways of doing things' that they failed to recognise the growing Japanese challenge let alone react to it. He writes:

> 'healthy economies and healthy societies alike have to keep order and chaos in balance - not just a wishy-washy, average, middle-of-the-road kind of balance, either. Like a living cell, they have to regulate themselves with a dense web of feedbacks and regulation, at the same time that they leave plenty of room for creativity, change, and response to new conditions.....The dynamics of complexity at the edge of chaos... seems to be ideal for this kind of behavior'

Further Waldrop (1994) points out that learning and evolution push a system towards the edge of chaos and help to keep it there. Thus 'in other words, you'd expect learning and evolution to make the edge of chaos stable, the natural place for complex adaptive systems to be.' Complex, adaptive systems learn to live on the edge of chaos by discovering and exploring new possibilities for adaption and development. This means that learning could well be the key to existing successfully at the edge of chaos.

Battram (1996) supports Merry's suggestion and refers to four classes of behaviour exhibited by nonlinear dynamical systems which draws on the work of Langton and Kauffman. These are: Class I - Stasis, Class II - Order, Class III - Chaos. He then refers to the fourth behaviour - the Edge of Chaos or Complexity. Although classified as the fourth behaviour it fits in between Class II - Order and Class III - Chaos. He illustrates these different behaviours and how they relate to the cellular 'game of life' and their analogies with organisations in a simple chart. This chart I have adapted, see Figure 5.1. over leaf. Battram (1996) also sees the edge of chaos as a zone where meaningful learning may take place. He writes:

Figure 5.1. Stasis, Order, Complexity / Edge of Chaos and Chaos. Adapted from Battram 1996.

Class	Living cell patterns	Information state	Organisation state
STASIS	Unchanging patterns of cells	Information cannot be transmitted	Dead or dying
ORDER	Cells oscillating between a number of states in a repeating pattern	Some information passes between cells	Complacent, unresponsive, repetitive behaviours - like IBM in early 80s
EDGE OF CHAOS	Complex patterning of cells, evolving and changing - elements of both order and disorder	Information flow between cells, flexibility but enough stability to support message structure	An effective, creative team, small company start-ups, like Apple & Microsoft in late 70s
CHAOS	Cells grow and die chaotically - no discernible pattern	Information cannot be transmitted, no flexibility, no stability	A team, dept. at war with itself, endless meetings & debate, no useful work done

> 'Learning operates at the edge of chaos, somewhere between a stable system of order and an unstable system of disorder! It is here that personal meaning, a person's system of personal knowing gets constructed'.

When an organisation balances at the edge of chaos it 'centers it identity around being a learning, changing system' (Merry 1995). The edge of chaos is the place in time and space where enormous creativity may take place, where changing and learning breathe together. Thus the importance of learning and changing as a symbiotic relationship which was referred to in Chapter 4.

5.4.6. Rhythms, Flows and Patterns

Gleick (1993) points out that the world is full of patterns, some are steady, some oscillating, many are fractal and all flow to their own rhythms. To see and to interpret the world from this frame of reference presents one with new insights

and different possibilities. The question is how to use them to develop and create vibrant organisations that resonate with the world around them.

Dale (1994) refers to Vail (1989) who describes the Chinese concept of Wu-wei - the art of non-action. - 'This he says is learning how to go with the flow, or follow the grain (of the wild river).' This is not about being passive it is:

> 'a powerful idea and a way to learn the art of judgment, knowing when to intervene and when to leave well alone. Too many managers, led on by the decisive, driving "I'm in charge" model, rush in, often making matters worse than they already are. Wu-wei suggests stepping back, examining what is happening, gathering ideas, listening to others' perspectives, considering options, thinking about the situation and, only then, deciding what action, if any, to take.'

This proposes a management approach based on the notion of flow which would fit in well with notions of reflection and cycles or flows of learning within the learning organisation. Dale (1994) also makes the point that the learning organisation is about being and not doing - in other words commitment and beliefs have to be translated into actions and behaviours. Thus a manager's behaviours should constantly flow through him / her rather than be 'add ons' designed to suit different events perceived as 'stand alones' in a non flowing world.

Wheatley (1994) links ideas of flow to power and energy in organisations. She considers that power in organisations is found in the energy that comes through relationships and the positive results 'of this flowing organisational energy' can be seen 'in our experiences with participative management and self managed teams.' 'Those who relate through coercion, or from disregard for the person,

create negative energy.'

Further, Wheatley (1994) suggests that in the future the structure and processes of organisations will need to be more flexible and more flowing where:

> 'process is allowed its varied-tempo dance, where structures come and go as they support the process that needs to occur, and where form arises to support the necessary relationships.'

Here the organisation is alive with its own rhythms, patterns and energy flows. It is a new way of looking at organisations and seeing their realities in a fresh way.

If, for example, we were to apply this approach to organisation charts then we would plot networks of relationships and channels of energy or energy flows needed to do a job. Wheatley (1994) contends that we would then see organisations in a very different way. To do this managers would need to improve their understanding of the elements that create organisational energy, such things as employees, time, resources, training, communications, etc.. Further, they would need too to recognise the ever changing nature of the organisation and remember that flows form patterns and have their own intrinsic rhythms that change as they flow and create, absorb, transmit energy.

The energetic flow of information and the connectedness or patterning of the structure together facilitate creativity and the development of new forms (Wheatley 1994). Thus the notion of flow has significance for both communication within an organisation and for creativity.

The theme of patterns, rhythms and flows appears again and again as one rethinks ones approaches to organisations in the light of chaos and complexity.

Stacey (1992) gives a specific example with reference to how one may detect patterns in the way businesses develop around the world. He cites the way Silicon Valley in California developed around the Universities at Berkeley and Stanford and how similarly in the UK a number of electronics firms sprang up around Cambridge University. There are differences but there is also some patterning.

5.5. Complexity Principles at Work

5.5.1. Self Organising Systems

Stacey (1996) writes:

> 'Self-organisation is a process in which the components of a system in effect spontaneously communicate with each other and abruptly cooperate in coordinated and concerted common behaviour.'

In Stacey's view if we apply ideas derived from self-organisation in organisations:

> 'we get a picture of the creative organisation as one that continuously confronts instability and crisis, out of which it creates new order in spontaneous emergent ways.'

To support his claim he refers to Pascale (1990) and his work on the transformation of the Ford Motor Company during the 1980s. The change of the company from a loss-making one to a more profitable one was not carried out according to some grand master plan. Rather the changes came about as a large number of 'independently-started change initiatives' came together and

built up into a 'major movement'. The various initiatives included employee participation teams, multidisciplinary teams, and various informal groups set up to challenge the bureaucracy and bring down barriers to change. Various task forces were also set up and there was extensive use of training and development programmes. Pascale (quoted in Stacey 1996) writes:

> 'The remarkable occurrence at Ford was that, somewhat mysteriously, a set of independent initiatives flowed together and became mutually reinforcing.'

This Stacey (1996) observes is what self-organisation is all about. Stacey (1996) describes self-organisation in organisations as follows:

> 'In organisations, self-organisation is the spontaneous formation of interest groups and coalitions around specific issues, communication about those issues, cooperation and the formation of consensus on and commitment to a response to those issues.'

A key word in this description is 'spontaneous'. Stacey's model of self organisation builds upon recognition that in human society all kinds of formal and informal group spontaneously arise and organise themselves often creating a network of contacts. They do not arise as part of some thought out plan or process but as a kind of natural response to events in the world around them.

Stacey (1996) points out that self-organisation is not the same thing as self management or democracy and lists 7 ways in which it differs. These 7 definitions are used to analyse the nature of the New Directions teams. They are as follows:

* Self organisation is 'a fluid process' whereby 'informal, temporary teams form spontaneously around issues' (self managed teams may be

permanent or temporary but are always part of the formal reporting structure).

* Senior managers do not control self organising teams - 'they can only intervene to influence the boundary conditions around them' (Whereas, self managed teams are set up by senior management and often indirectly controlled by them).

* In self organising teams individuals in the team decide who takes part and what activities they will carry out (In self managed teams senior managers decide these things).

* Self organised teams often conflict with and are 'constrained by the hierarchy'. (Self managed teams replace the hierarchy).

* 'unequal power energises networks through conflict but also operates as a constraint'. (Whereas 'dispersed power is supposed to lead to self-managed teams and consensus').

* In self organised teams the participants empower themselves (In self managed teams the participants are empowered by senior management).

* 'The self organising process is both provoked and constrained by cultural difference' (The self managed process 'is based on strongly shared culture').

Nonaka (1988) writes:

> 'The essence of self-organization is in the creation of information. The self-renewal strategy of an organization lies in its ability to manage the continuous dissolution and creation of organizational order.'

In my view this is a more radical view than Stacey's and has some managerialist overtones. Nonaka (1988) argues that for an organisation to

transform or renew itself it has to 'dissolve' the existing order and negate 'the balance-orientated organizational theories' and instead embrace the 'paradigm of self-organization'. He sees the creation of self organising teams as essential to enabling this and envisages members of these teams competing with each other in creating information and devising new concepts.

Prahalad & Hamel (1990) describe how self organising organisations have structured themselves around core competencies and avoid rigid or permanent structures. Skills, tasks, groups, and projects emerge in response to a need and when the need changes, so does the structure of the organisation (Wheatley 1994). Such an organisation responds more quickly to new opportunities and is guided by its own competencies. Furthermore, the 'presence of a strong competency identity makes the company less vulnerable to environmental fluctuations; it develops an autonomy that makes it unnecessary to be always reactive' (Wheatley 1994).

Wheatley (1994) and Stacey (1992,1996) describe how self organising systems are driven to change when the amplifying process reaches a point where the amplifications have increased the stability to a maximum, and reached a bifurcation point. The system then 'encounters a future that is wide open' (Wheatley 1994). In business terms the creativity of a few individuals can result in getting the organisation's attention and if the process is allowed to amplify itself the company may go in a new and unexpected direction (Wheatley 1994).

Morgan (1993) considers the random way in which termites self organise to build their complex, free form nests offers inspiration for developing a new approach to strategic management and change. The termites do not work to any predetermined plan but are opportunistic and spontaneous, guided by an overall sense of purpose and direction. In Morgan's view the behaviour of these termites suggests that managers leading a change process should:

> 'have clear aspirations about what they would like to achieve. But, instead of trying to force-fit their vision, or direct and control a situation to achieve the results they would like to see, they manage in a much more open-ended way, encouraging and allowing desirable initiatives to emerge from the evolving situations being faced.'

Johnson (1996) provides an example which in his view illustrates the principles of self organising systems when he describes how staff at the Open University produce multi-media teaching and learning materials. He writes: 'academic staff usually self-organise into course teams to produce courses which they find interesting and rewarding'. He describes how the process begins with the chance meeting of two academics who become enthusiastic about a shared interest. This snowballs until sufficient academics have been attracted to the idea. Once the proposal has been approved and given necessary resources then 'the people self-organise as a *team*' (Johnson 1996). In Johnson's view the campus provides a structure for important chance encounters to take place and its policy of employing academics with wide interests provides 'the backcloth structure'. He writes:

> 'Dynamic organisations must have policies defining which people can or should self-organise, and make it possible for self-organisers to do so. Organisations in which everyone unilaterally self-organised with no external control would be anarchistic, ... Organisations in which no-one self-organised would stagnate..... Therefore it is necessary for institutions to have policies which enable and control self-organisation, as far as this is possible.'

Johnson does not describe his definition of 'control' in this context so it is difficult

to envisage precisely what he means. There is no doubt that a formal framework or clearly defined context is necessary for any organisation but the notion of control fits uneasily with ideas of self organisation, as does reference to policies which determine who is able to self organise. This could make spontaneous self organisation difficult. Johnson may be reflecting the traditional bureaucratic background of the Open University or considerations of the edge of chaos (discussed in Chapter 2) and the dangers of too many fluctuations tipping an organisation over into disintegration.

5.5.2. Complex adaptive systems

Merry (1995) suggests that societies, organisations and individuals are complex adaptive systems and therefore have 'the capacity to transform themselves their behavior, and relationships so as to create the novelty needed for the changed conditions.'

Learning sets complex adaptive systems apart from other complex and complicated systems. It is this aspect which determines their aliveness. A self organising sandpile does not learn and adapt but a human self organising team does. Here is major difference. Stacey (1996) emphasises the importance of learning as a feature of complex adaptive systems. He points out that human systems are adaptive because they 'change the rules as they go along' and engage in double-loop rather than single-loop learning.

Battram (1994) points out that complex adaptive systems are made up of components or agents which are not totally free for they are 'constrained by certain linkages to each other' also there is 'a higher level of structure' which is often hierarchical in nature. A final and critical point concerning complex adaptive systems is that they have emergent properties (Battram 1996, Coveney and Highfield 1995, Lewin 1993, Waldrop 1994). Stacey (1996) too points out

that complex adaptive systems 'produce emergent outcomes through a process of spontaneous self-organisation'.

Merry (1995) points out that another highly significant feature of a complex adaptive system is that it can anticipate the future based on its own internal models. It suggests a complex, dynamic learning web linked to experience, the history of the individual or group or species, observation and reflection and imagination. Thus the development of a complex adaptive system in an organisation is intimately linked to the organisation's culture, values and history and its own internal view of itself. This may serve to encourage and facilitate further complex learning or to hinder it.

Stacey (1996) points out that complex adaptive systems evolve to the edge of chaos where they 'display recognisable archetypal patterns of behaviour but with specific actualisations that are radically unpredictable' and that they are creative only when they operate on the edge of chaos. In summary he describes a complex adaptive system thus:

> 'a number of components interacting with each other according to sets of rules in such a manner as to improve their behaviour and thus the behaviour of the system which they comprise. In other words.... agents interact in a manner that constitutes learning.'

What does these mean for organisations? Stacey (1996) suggests that complex adaptive systems do have a special kind of order which they create themselves. There is no mission statement nor a 'charismatic leader' involved in achieving this, it arises spontaneously. These systems are spontaneous, emergent and creative and also very paradoxical. They are paradoxical because they are both competitive and cooperative. Self organising teams given the freedom to behave as they wish can explore areas normally that would be considered out

of bounds as either too contentious, too politically sensitive or whatever. This enables them to explore a wide range of issues and to create and consider innovative and exciting options for handling them. This opens the windows to radical new visions of the future. As the teams explore options for the future in an unhindered way so they learn and adapt to the ongoing changes they have stimulated and those which have arisen from other sources within the organisation. They develop into complex adaptive teams and out of all this emerges enormous creative potential for the teams and an organisation.

5.5.3. Emergence

Emergence is a feature of complex, adaptive systems. and it often leads to the creation of new, often more sophisticated and complex forms which arise out of the myriad activities of complex systems. What does this mean for organisations? Gareth Morgan (quoted by Pickard 1996) comments:

> 'Innovation emerges....You cannot create innovation by having an innovation programme. Semler recognises that, and what he has done is a good example of a new order emerging out of chaos - none of that was planned.'

Here Morgan seems to be suggesting that innovation is not something that one can bring about in a preconceived way. Rather it is one of the properties that may emerge from a complex range of activities. Ricardo Semler (1989) created a new set of values for his company to work for and they led to an experimental and challenging way of running an organisation. As a result of this complex, interactive, new cycle of activities an innovative company emerged.

In the context of an organisation a team which is working as a complex, adaptive, system will work together so that something else emerges, perhaps

what is often called 'team spirit'. Lewin (1993) comments that the lives of humans are transformed 'by membership in a larger entity, an entity they also help create.'

In McMaster's (1996) view emergence rather than design is responsible for most companies. He states that he has yet to speak to a founder of an organisation who does not privately admit that their organisation 'just sort of happened'. Further many are happy to accept that their organisations emerged 'from the interplay of numerous accidents and their own approaches.' The notion of an organisation as an emergent phenomenon lead McMaster to state that this suggests a new theory of organisation. One that suggests that an organisation has its own characteristics, 'such as intelligence, ability to learn, and a culture (or personality) - its own being.' Further:

> 'This theory implies that these qualities exist independently of the founder, management, and people currently in that corporation. Even though some of the specifics that were intended and planned by individuals can be traced to individual personalities or to the results of specific historical accidents, what now exists has a life of its own.'

To McMaster this means that managers need to adapt a new approach to organisations, one that radically affects the ways they may view their responsibilities. He suggests that they become more like horticulturists in a rain forest with responsibility for the 'health and survival of a particular plant species in that forest.' If they do their job well the species will flourish, if they fail the species will weaken and its place in the forest be taken by other species. This calls for a radical new way of looking at organisations and considering how best to behave within them.

5.5.4. Biology, Evolution and Complexity

What connection can insights into biology derived from complexity have for the world of organisations? McMaster (1996) is quite sure of the connection when he states that:

> 'Corporations are facing the same challenges that all living beings face in their attempt to survive in an ecosystem.'

Kauffman (1996) suggests a link when he states that: 'Organisms, artifacts, and organizations are all evolved structures.'

Stacey (1996) refers to Kauffman's (1996) fitness landscapes and points out that if one is to survive one must avoid pitfalls like getting stuck in the valleys or in the foothills. In his view it would be pointless to adopt the strategy of the logical incrementalists and try to take a large number of small steps designed to avoid difficulties. This logical rational approach may prove efficient in the short term but over the long term it will result in one getting 'trapped in the foothills'. In other words, the best approach, Stacey suggests is to abandon this 'nice neat strategy of logically incremental moves and travel in a somewhat erratic manner'. This may result in slips and slides but this intuitive, erratic, approach could well result in stumbling across 'the foothills of an even higher mountain than the one' originally being climbed. Also there will be innumerable opportunities for real, evolutionary learning. As Stacey (1996) concludes, systems or organisations 'that get trapped on local fitness peaks look stable and comfortable, but they are simply waiting for destruction by other species following messier paths'.

Berreby (1996) refers to Kauffman's adaptive landscapes as a metaphor and a way of understanding how to think about the future. For example, the notion that

the landscape is constantly changing and is affected by the actions of everyone that roams across it. Berreby gives the example of how if IBM decided to pull out of the laptop business it would affect those companies already in that area.

Battram (1996) comments on the relevance of fitness landscapes to organisations by observing that there is 'no such thing as a level playing field' and that instead organisations exist on 'constantly deforming landscapes'. He suggests that it has implications for standard notions of strategy and proposes that strategy 'emerges from scanning not planning'.

Merry (1995) reminds us that evolution is not a simple tale of chance but 'also a tale of order and creativity' and that complex organisms self organised into even more complex and sophisticated forms. Darwin, he suggests, stressed only the competitive aspects of creation and did not highlight the equally important cooperative aspect. Competition and cooperation exist side by side in a complementary way (Merry 1995, Waldrop 1994). This has interesting implications for organisations brought up on the competitive notion of survival of the fittest.

Understanding the nature of evolution can be very useful in looking at an organisation and its individuals. Merry (1995) considers that evolutionary learning, the way species and organisms learn and evolve through learning, 'might be the foundation on which human systems can develop the evolutionary competencies which enable them to function effectively at the edge of chaos' . Evolutionary learning echoes the approach to learning espoused by writers on the learning organisation / company. It is innovative and creative, reflective, challenges assumptions, disturbs mindsets and learns about learning.

5.6. Concluding Thoughts

How could organisations use ideas derived from chaos and complexity to transform and renew themselves in order to survive in the coming decades? Wheatley (1994) suggests that organisations will need to learn to live with confusion, uncertainty, ambiguity and paradox. Also that they will need to develop new ways of handling information, not by using more sophisticated information sorting techniques - but by freeing information flows and allowing their generative properties to emerge.

If organisations want to plan for the future and devise strategies that will be successful then Berreby (1996) suggests that the way forward is to stop trying to control them but to look for the emergent properties that will arise as the system organises itself and then to 'devote yourself to preserving the conditions in which the best solutions evolve.'

Merry (1995) recommends that organisations become learning systems, in other words, they need to embrace 'evolutionary' learning, to be always changing and constantly reflecting and learning from this process.

Stacey (1992) considers that an understanding of chaos and complexity can help managers to better understand the world of organisations and appreciate the need 'for constant creativity and innovation' which are so necessary for success. If managers are to succeed they have to be able to manage in all kinds of situations. It is, he states, relatively easy to find ways to manage in situations of closed or contained change and often in the short term traditional controlling approaches may work. However, it is very different when trying to manage during periods of open ended change and over the long term when new approaches are needed. At times like this managers need to recognise that 'tension and instability' are 'essential for the creativity that spawns successful business strategy'. They should, therefore in Stacey's view,

'deliberately attempt to create conditions of bounded instability'. To do this they will need to develop new skills, learn to handle paradox and encourage the creation of new 'perspectives'. Stacey (1992) writes:

> 'They learn how to explore small changes to develop self-reinforcing virtuous circles. They consciously manage the unknowable, relying on the self-organizing process from which innovative organisational strategies may emerge. Those strategies appear partly as a result of the creative actions of managers themselves; partly as a result of the responses their actions provoke from rivals, customers, suppliers, and regulators; and partly as a result of chance.'

Stacey (1992, 1993) recognises the difficulties managers face in coping with turbulent and uncertain futures and suggests 8 steps that they may take encourage order out of chaos. These 8 steps are used to form part of the key theoretical framework of this thesis and are as follows:

* Developing new understandings and perspectives on control.
* 'Designing appropriate uses of power'.
* Setting up self-organising teams.
* 'Developing multiple cultures.'
* Offering ambiguous challenges instead of clear objectives or visions.
* Taking risks.
* 'Improving group learning skills'.
* 'Creating slack resource'.

<u>Developing new understandings and perspectives on control</u>

This is not about abdication of responsibility by managers, nor is it about about a free hand for people to do as they like. It is more about changing mind sets and creating an enabling environment where process and outcome are not

controlled nor predicted.

Designing Appropriate uses of Power

The use of power in an organisation will have a direct impact on its dynamics and the dynamics of managers and groups of managers. Power has to be used by senior managers in such a way that groups of managers may work and learn together.

Setting up Self Organising Teams

The formation of self organising networks and the agendas that they create are at the heart of strategic management.

Developing Multiple Cultures

Shared cultures rarely produce new perspectives thus management should promote counter cultures by rotating people around jobs and functions and even bringing outsiders.

Offering Ambiguous Challenges instead of Clear objectives or Visions

To encourage people to look for new ways of doing things.

Taking Risks

Stacey considers there is no safe alternative to taking risks. He refers to the work of Michael Porter which demonstrates that the companies which seek out challenges tend to find the competitive advantage.

Improving Group Learning Skills

Groups of managers need to develop complex learning skills and to question their own mental models.

Creating Resource Slack

It takes time for new perspectives and ideas to emerge and people will need to have the time to devote to the necessary activities. Overloaded managers will not be able to participate effectively.

Chaos and complexity science offer us new ways of seeing and interpreting organisations and their behaviours as part of a dynamic living web of activity. The 'dynamic connectedness' (Jantsch,1980) of everything is a vital aspect in understanding these new approaches. In this thesis I have tried to consider organisations from such a real life perspective, to escape from the predominant organisational mindset, yet see ways forward that connect to the existing landscape. One way forward is to take a transitional approach which picks ups some of the underlying principles, such as self organisation and weaves them into an existing context. This notion was suggested by the case study and is discussed further in Chapter 10.

I would suggest use of a new sciences perspective challenges current interpretations of organisations and organisational change. Much empirical research has been carried out on organisations but researchers and subjects are consciously and unconsciously influenced by the prevalent paradigm. Thus they interpret reality via their existing framework of beliefs. If, for example, one considers evolution as incremental and step by step then this view is likely to affect one's interpretations of change. But modern understanding of evolution points to radical shifts. It is in this way that knowledge of the new sciences can provide a fresh perspective.

The use and effectiveness of ideas and insights from these new sciences are discussed with reference to a real life change process, the New Directions programme at the Open University, in Chapters 8 and 9.

CHAPTER 6

METHODS AND METHODOLOGY

This chapter describes the strategic approach taken to the data collection, decisions on methods, the use of these methods and the process of data analysis. Thus section 6.1 describes the overall approach and the thinking. Section 6.2. focuses on the three particular methods used to generate the primary data; interviews, questionnaires and workshops, and discusses each in turn. Section 6.3 explains how these methods were used and the techniques and approaches employed. Section 6.4. describes how the collected primary data was processed and analysed and includes details on the methods of analysis and their use. Section 6.5. explains the approach to the collection of the secondary data, how it was carried out and its analysis and use.

6.1. The Thinking behind the Practice

For almost four years I had been closely involved in the University's New Directions programme. Now I was looking back over a long period of intense activity and had to decide how best to explore what had happened from two major perspectives. How effective had the programme been as a change process and how much could I discover about the relationship between ideas from the new sciences and the realities of effective change processes?

From the very first I decided that I would not measure the programme against a model of organisational change but rather would let the events speak for themselves. In other words, I would seek evidence and explanations from the narrative of a change process that had actually taken place. I needed an approach which involved the collection of evidence about events that had been

going on in the real world. Additionally it needed to resonate with my research topic. I felt that I would be undermining the whole ethos of the new sciences if I did not approach my research in a holistic and somewhat eclectic way. A case study approach offered a research strategy that would enable me to investigate the 'meaningful characteristics' of real life events in a holistic way (Yin 1989). By taking this approach I would be carrying out a strategy which involved an empirical investigation on a 'particular contemporary phenomenon within its real life context' (Robson 1993). It would be empirical in the sense that the data relied on the collection of evidence about what had been happening.

The case study approach is very appropriate for exploratory work when one seeks to find out more about what happened, to ask important questions and to seek new insights (Robson 1993). But it is not exclusively exploratory and may also be explanatory (Robson 1993, Yin 1989), therefore, it would enable me to seek answers to significant questions. It would also enable me to assess a change process in a new light by viewing it through the 'lens' of the new sciences.

As I thought how best to consider the programme from a new sciences perspective so it became clear that I needed a theoretical framework within which to place my considerations. I decided to consider my case study within a theoretical framework provided by Stacey's work on using complexity science (and chaos theory) and in particular his work on complex dynamical systems and self organising principles. I would refer to the work of others too. Stacey provided a theoretical basis for considering the case study from a new sciences perspective, and because of his work in applying these ideas to organisations it would also provide a theoretical framework that was appropriate for my considerations of a real life organisational change process. I decided, in particular, to use the eight steps Stacey (1992, 1993) suggests for creating order out of chaos and Stacey's (1996) 9 point complexity theory of organisation.

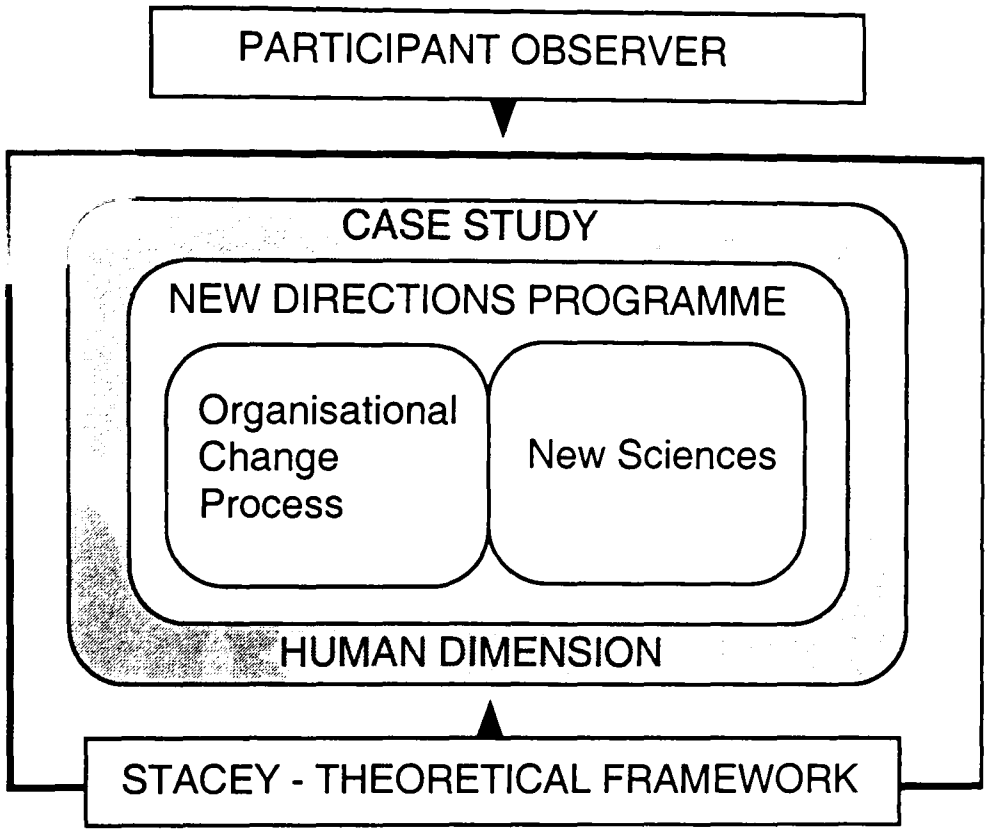
Both are described in Chapter 5. The latter offers an organisational framework at an institutional level, whereas the former provides a framework at the local or operational level.

Stacey's eight steps suggest ways in which managers may begin to cope with uncertain futures and turbulent, fast moving (chaotic) conditions. Stacey (1996) contends that complexity science provides us with a new frame of reference with which to consider organisations. It is a view which sees organisations as unpredictable, complex, dynamical systems that are composed of interacting agents, or human beings, who create non linear feedback loops (systems) and who learn and adapt through their own self organising activities. Stacey's (1996) 9 point theory of organisation is an embodiment of this view and provides a valuable theoretical framework within which to consider the New Directions programme as an organisational change process from a new sciences perspective. Additionally, Stacey's (1996) work on self organising teams would provide a tight theoretical framework within which to consider and evaluate the New Directions teams from a complexity perspective. Thus Stacey's work would provide the key framework within which to consider the two key areas of exploration: New Directions as an organisational change process and the influences of ideas from the new sciences. This is shown in Figure 6.1.

The figure also shows how the focus of the case study would be on the human dimension of the programme, in other words, the role of the people and their actions and behaviours, rather than strategic planning, organisational politics or material resources. Further, it recognises my role as participant observer in relation to the New Directions programme, the subject of my case study.

I had to be quite clear about my own role. I had been a major participant in the programme under study and now I was attempting to stand back and see it through the eyes of others. In such circumstances it can be very difficult to be

Figure 6.1. Overall Approach to Data Collection, Analysis and Interpretation



completely objective. It was necessary that I acknowledged my current role and my past involvement both to myself and to the participants in my research and this I consciously sought to do. It was important too when reviewing the data to take a skeptical stance and to keep a mind open to the many possibilities of interpretation. However, there were also benefits. I knew almost everyone involved, and could 'short circuit a lengthy process of development of trust' (Robson 1993).

In considering the overall design of my data collection I thought of the narrative as being rather like a large tapestry. One could look at it and see the overall scale and pattern of events but these would also be filled in with rich and exquisite detail. In other words, I would seek evidence that would provide the 'big picture' and the hard facts (ie. the programme's dimensions, workshops, projects, etc.) but also the outstanding threads (major themes) and fine details (ie. individual experiences and perceptions). Rather like the real world Bayeux tapestry the New Directions story would unfold as one looked at it. Explanations and insights would emerge as one explored the fine detail and also as one

stood back and viewed the whole panorama. To do this I would need to employ multiple methods of data collection.

As I stated earlier, I wanted to investigate an organisational change process not from an overarching viewpoint derived from a strategic planning perspective but from the 'ground level' perspective of the people whose working lives were embraced by this process. I needed to find out what people thought, felt and believed. It was important too that I uncovered what people <u>really</u> thought or felt and interviews and questionnaires would provide evidence on what they might think or do privately (Robson 1993). As Robson points out when carrying out an enquiry involving people why not make the most of the fact that they are able to tell you things about themselves.

I had to consider the fact that the programme had commenced almost four years before I began my enquiries. How much would people remember? One way I sought to resolve this issue was to provide a 'memory jog pack'. This would help with the factual information and hopefully stir memories. There was a wealth of materials available from which to make my selection and inevitably it would reflect my own preferences but I attempted to offer an eclectic choice from documents and information which were widely available. The pack consisted of a selection of written materials on, or associated, with the New Directions programme, which I list in Section 6.3. With the exception of the list of workshops and the Visualization workshop poster, all the materials were ones which the participants in my case study would have seen or read at one time. Further, I reasoned that the interviewees themselves would make their own choices of aide memoire and reject and select as they preferred. But a more direct way would be to stimulate recall by the sharing of recollected experiences. Thus I decided to use workshops. Groups of New Directions participants would then have the opportunity to exchange recollections and through a process of exploration also clarify their memories. The workshops

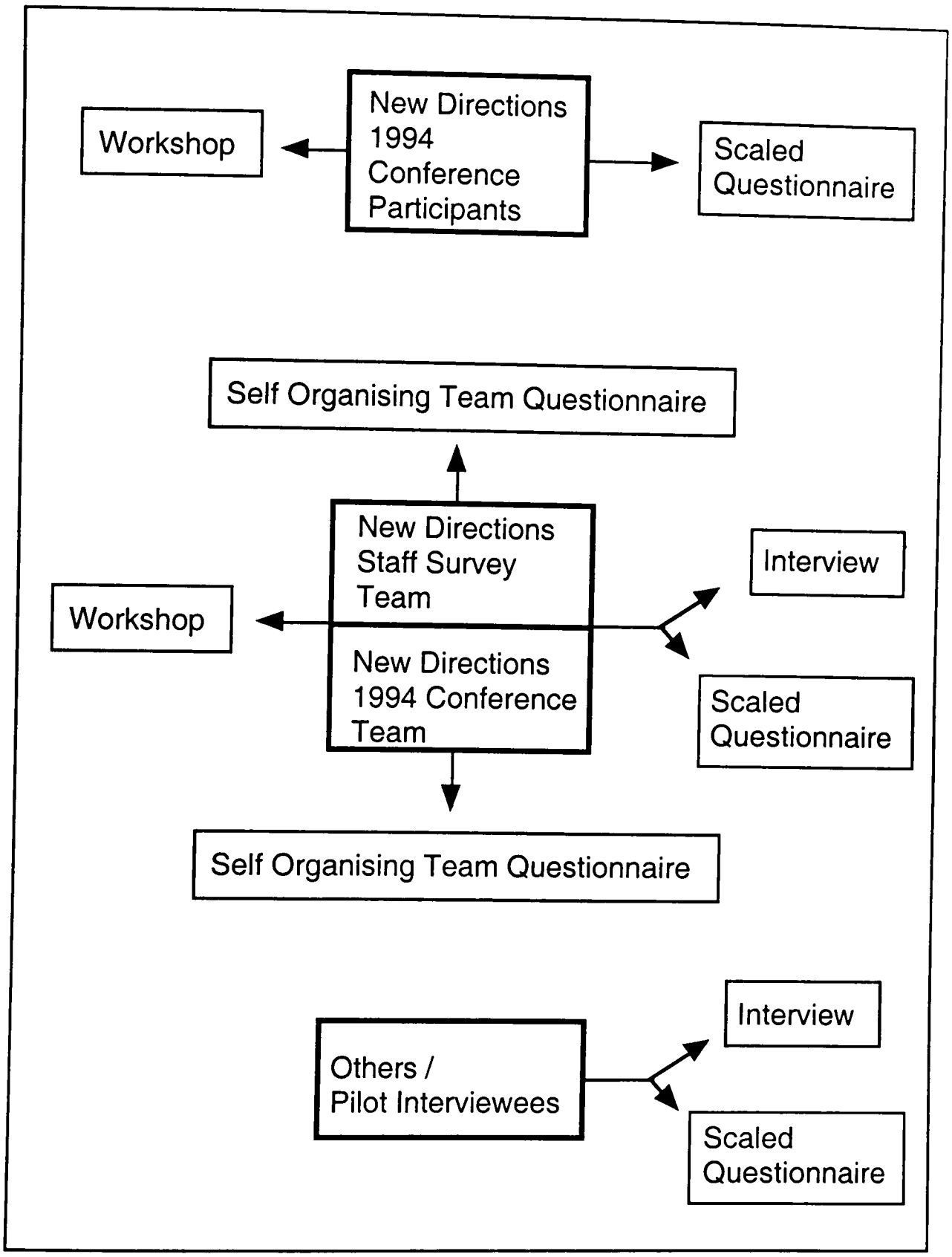
also provided an opportunity to use video recordings of the 1994 Conference. These were unedited so they told the story of the Conference exactly as it appeared to the camera at the back of each room. Again I had to make a selection from a wealth of available material. I decided to show extracts from the final plenary session. I chose this session because it would have involved everyone at the Conference, whereas the workshop sessions did not. I then selected clips that highlighted the different themes listed in the Conference Report which had been put together by an external consultant.

I was also interested in the evidence that different inter personal dynamics might provide. Different kinds of experiences would provide different kinds of qualitative data. The interviews were one to one interactions, the workshops were one to group interactions involving a rich mix of recollections and experience, whereas completion of the questionnaires would be without any interaction with others. Further, each method had a different structure. The workshops free flowed within a structure, the interviews were more structured but still with flow, while the questionnaires were tightly structured with little or no space for the interaction and free flow of ideas and emotions.

The use of three different methods of obtaining data would provide the narrative with richness and detail and also a way of checking the evidence via triangulation. Another benefit would be what Robson describes as the 'reduction of inappropriate certainty'. In other words the use of multiple methods reduces the likelihood that one is misled into thinking that there is one 'right' answer. The use of multiple methods is more likely to produce differing answers and even pose additional questions. This would appear to reflect the realities of organisational life and was, therefore, highly desirable.

Figure 6.2. shows the overall design of how the primary data was collected. It

Figure 6.2. Case Study Design - Primary Data.



shows the instruments used and also, in the boxes in bold type, the groups of staff involved. How these different groups of staff were selected is discussed in Section 6.2.

Secondary data was collected using documents and records to provide

verification of the events described and factual information on the programme and participants. Further, the secondary data would also provide non reactive evidence and a 'stable, rich and rewarding source' (Guba and Lincoln 1991). Most importantly, it would also provide for triangulation with the primary data. Also, the secondary data would help to ground the research and 'lend contextual richness' (Guba and Lincoln 1991). By also providing a source of quantitative data I would also enhance my interpretation of the evidence (Robson 1993). Ever conscious of my own role in this process I considered that the inclusion of quantitative data would improve my objectivity when considering events in the New Directions story. Further, I knew that the secondary data included substantial evidence of personal responses recorded as the events unfolded. These provided additional important qualitative data and another source for verification and comparison. Section 6.5. describes how I selected and used my secondary data sources.

6.2. The Methods - Primary Data Collection

In this section I discuss separately the design of the three methods chosen to collect the primary data and how the participants / respondents were selected.

6.2.1. Interviews

Semi-structured interviews were used because they would have both structure and flexibility. A semi-structured interview gives the interview a clear focus for both participants and signals to the interviewee the ground to be explored. It also allows for emergence. The structure allows the interviewer to explore areas more deeply if tone of voice or body language suggest that there are important unspoken messages to be surfaced. This may add unexpected richness to the information and bring new insights. Also as Robson (1993)

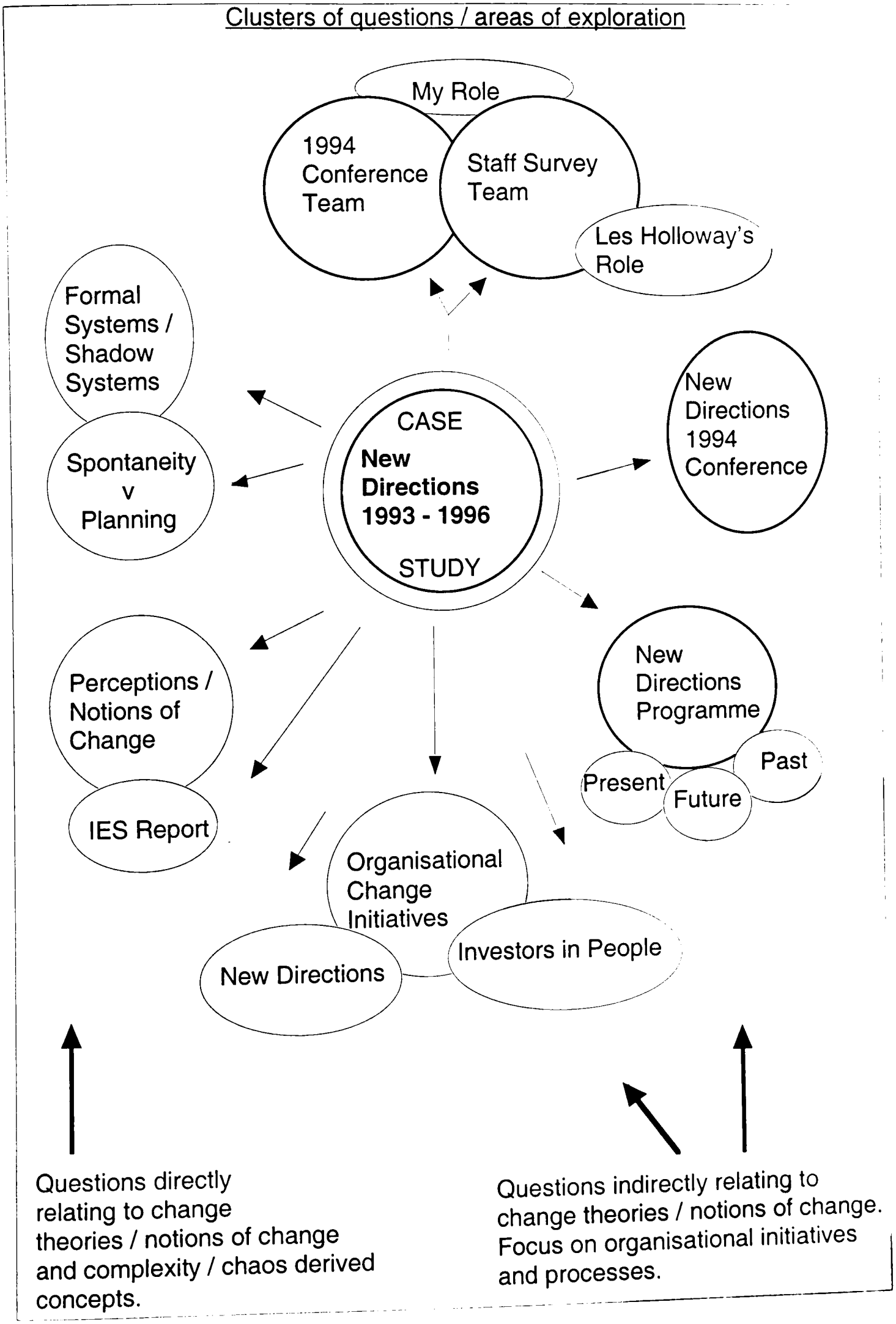
points out in the semi structured interview the interviewer has more freedom in how they word their questions, how they sequence them and how much time or attention they give to different topics.

I decided to base my interviews around a series of core questions. These would be a way into different areas of exploration and would ensure that all the interviews followed a recognisably similar pattern which would also help with ease of analysis. Apart from some closed questions designed to verify factual information I would use open ended questions and avoid hypothetical ones and leading ones.

I decided to structure my interviews into clusters or groups of related questions. Figure 6.3., shows the different clusters and how they fall into two broad categories: i. questions directly relating to change theories / notions of change and chaos and complexity derived concepts, and ii. questions indirectly relating to change. The questions in category i. were designed to seek for data on concepts of unpredictability, spontaneity, self organisation, learning, the Butterfly Effect and shadow systems, all of which related to Stacey's (1996) 9 point theory of organisation.

The other group of clusters focuses more on the New Directions programme and the topic of organisational change initiatives and processes. By using this approach I could both investigate what people thought and felt about the New Directions programme in general and the 1994 Conference in particular. I decided to include a cluster of questions on the Conference as it was a landmark event in the programme which had received considerable publicity and had involved approximately 100 staff. Most if not all of the interviewees should be able to recall it. Questions on the New Directions programme and the Conference in particular would enable me to explore aspects of an organisational change process from the viewpoint of those involved at an

Figure 6.3. Interviews: Clusters of questions / areas of exploration



operational level. Also, this cluster of questions would provide a rich source of data on people's understandings, perceptions and expectations of strategic change processes. Further, questions on the programme and the Conference were developed with reference to Stacey's (1992,1993) 8 steps whereby managers could encourage the emergence of order out of uncertainty. The University was facing many new challenges how would the New Directions initiative compare with Stacey's recommendations?

Each cluster contained a number of core questions. The response given a core question would determine the nature of any follow up questions. Obviously, only members of the two teams: the New Directions 1994 Conference Team and the Staff Survey were asked the questions from the teams cluster. The questions in this cluster were again devised with reference to Stacey and in this case his work (1996) on self organised and self managed teams. The number of responses to any given question would vary because of the varying experiences in regard to New Directions activities of those interviewed.

Having decided to use interviews as one of my research methods and to use a semi-structured approach I had to decide who to interview. There had been hundreds of participants in the New Directions programme. Clearly I could not interview them all. If I thought of the participants then immediately a group of them stood out from all others. These were the people who had attended a New Directions event and had subsequently become active in the continuing life of the programme. These were the 'activists'. These were members of staff who had decided to work over and above their normal roles to support the programme. What had motivated them? Why would they willingly take on extra work? There were so many questions to ask this group of staff. The answers would tell me a great deal about change processes. Thus I would be investigating a change process by making detailed enquiries of those who had become an active part of the process itself. Instead of exploring why people

ignored, blocked or were unmoved by change processes, I would be looking for the reasons why people would support such an initiative. What was it that made people enthusiastic? Why would they want to get involved? Further the activists as a group represented a good cross section of categories of staff. They included members of secretarial and clerical staff, administrative staff, academic staff and technical staff. Only manual/craft staff were not included. Further, there were members from Walton Hall, the regions and from Wellingborough warehouse, so various locations were also represented. Within each category of staff different roles and different grades were also represented The activists were readily identified because they had originally become active in the programme by volunteering to form either the 1994 New Directions Conference Team or the Staff Survey Team. By interviewing the members of these two teams I would also learn more about how the teams had supported the programme and how they had worked as teams. There was a total of 15 activists in these teams which made interviewing them all a realistic goal.

When the teams were set up I had been aware of Stacey's work on chaos, shadow systems and some aspects of self organisation. I had used these ideas and other notions drawn from chaos and complexity science to influence many New Directions activities and approaches and I had done this in a spontaneous and very unplanned way. How much had these ideas affected the programme and the formation of the teams and the way they operated? By focussing on these two teams I would be able to further investigate these aspects. I would also be able to compare and contrast them with each other and with other University teams. This I would seek to do by exploring their thoughts and feelings about their experience of being a member of a New Directions team and comparing it with their experiences of belonging to other OU project teams. I was not content, however, to rely solely on an interview to explore the nature of the two teams. I decided to seek further more detailed and more specific information via a specially designed questionnaire. This is discussed in Section

When I considered the two New Directions teams I also had to recognise and consider my own involvement. I had been very aware that if the teams were to get off to a good start and to work effectively then some facilitation would be necessary. Thus I saw my role in the early days of both teams as facilitative and enabling. What would I discover from investigating my role? I decided to investigate using both interview and questionnaire.

Would it be sufficient to interview only those staff who had become active in the New Directions programme? I decided that I should interview others in order to build up the contextual background and to get a richer impression of the impact the programme had made on the life of the University. I would interview staff who could help provide other perspectives on the programme and thus create points of comparison and triangulation. I decided to hold two pilot interviews to test the effectiveness of the questions and the interview structure. I also decided to interview on a pilot basis, a trade union official who had attended the Conference in 1994. It was important that I had some input from this source given the way New Directions sought to involve itself in staffing issues. How would her views compare with those of others involved in New Directions? This I did by interviewing two members of the training staff who had been involved in the early days of the programme. I knew they would be honest and challenging in their responses and would help with the context.

My interviewees were, with two exceptions, from the middle and junior ranks of University staff so it was important, if possible, to include something of the senior management view as this would provide another perspective. The Director of Public Relations, Les Holloway, was a member of the Staff Survey Team so I would be interviewing him. He was not an 'activist' nor a participant in the programme and had become involved because of his role at the University. His

experiences as a member of the team but also as a senior manager would provide insights into the views of the senior management at the University and fill out more of the background. I decided to interview one other senior manager and selected one who was uniquely placed to view the programme from many aspects. He had been involved in it from its inception and was well placed to provide insights into the views of the University's senior managers and would also add further contextual details. This gave me a total of 20 interviews to carry out.

6.2.2. The Questionnaires

I decided to use two different self completed questionnaires to collect data. Their use would improve the reliability of the interviews by providing another source of data against which to check the interview responses. They would also enhance objectivity as there would be no direct contact with the researcher when being completed. Further the responses would add more to the contextual picture and the 'story' of the programme and its place in the history of the University.

Questionnaire 1 was a 5 point Likert scaled response questionnaire. This was used as it is a simple way of discovering people's feelings and attitudes and the strength of these (Bell 1993). It was on one side of A4 and had 15 statements. See Example 1 in Appendix 2. It was designed to be simple and easy to use. With only one exception all the statements were positive with regards to New Directions and change processes. There were no contradictory statements built into the questionnaire as this would make analysis more complex and might possibly be found confusing by the respondents. Figures 6.4. to 6.6. that follow, show how the questions on the questionnaire linked to the interview questions.

Other questions also explored organisational change initiatives, people's views

on effective organisational change and the effectiveness of New Directions in bringing about change. Other questions were devised to provide some feedback to my sponsors on whether or not a New Directions style initiative was needed again at the University. But they also indirectly comment on the effectiveness of the programme itself.

The questionnaire was given to everyone who was interviewed and also those who attended workshop 1. (Section 6.2.3. describes how staff were chosen for

Figure 6.4. Scaled Response Questionnaire and Interview Questions.

Interview Cluster 2. The New Directions Programme	**Questionnaire 1**
Describe New Directions in one sentence.	Questions: 1, 2, 3, 4, 10, 11, 12.
What do you think of the ND style / approach. How would you describe it?	Questions: 1, 2, 10.
Are there any aspects of ND activities & approaches which make it stand out from any other organisational / staff development activities / programmes ?	Questions: 1, 2, 3.
Did ND change	Question: 13

Figure 6.5. Scaled Response Questionnaire and Interview Questions,

Interview Cluster 3 Organisational Change Initiatives.	**Questionnaire 1**
How effective do you think the ND programme was as a programme for organisational change?	Questions: 10, 11, 12, 14

Figure 6.6. Scaled Response Questionnaire and Interview Questions,

Interview Cluster 5. Perceptions and Notions of Change	**Questionnaire 1**
The idea that small changes can make significant differences over time....What do you think of this?	Question 5

workshop 1.) This would allow comparison between the views of the activists and the non active participants. The questionnaire was given to 28 people in total.

A second questionnaire (for activists only) was designed to verify some of the interview responses given by the activists and also to explore in more detail the

nature of the two New Directions teams. Most importantly I wanted to discover if the two teams had any self organising attributes. Thus I sought to design a questionnaire which would draw out any aspects of self organisation. As explained earlier, to do this I drew heavily on Stacey's (1996) work described in Chapter 5. Section 5.1. and also my own research.

The questionnaire was composed of two parts. Part one consisted of statements which the respondents were asked to read through and then to tick any that described their team. 11 of the statements described attributes of self organising teams based on Stacey's (1996) definitions. A further 7 were based on Stacey's (1996) definition of self managed teams or democracy. 8 described features which I considered applied to self organising groups or were 'signposts' that indicated the presence of self organising influences. I based these on my own readings, in particular, Kauffman (1996), Stacey (1992, 1993, 1996), Waldrop (1994), and Wheatley (1994). The statements are shown in Chapter 9 section 4. The remaining statements either sought to challenge or contradict the evidence in support of self organising or self managed teams and to provide evidence of features derived from more traditional, formal teams or committees, or to gather evidence regarding processes and the effectiveness of the teams. All the evidence would provide valuable data to compare with the data collected from the interviews.

The second part of the questionnaire contained 24 words which the respondents were asked to circle if they thought they applied to their experience of working in the team. In designing this section I was looking for evidence of energy as evidence of self organisation, for if a system is to be self organising then it needs a constant energy flow (Capra 1996). How do we identify the presence of energy in human terms? Obviously the word 'energetic' is a clear indicator but if one thinks of other feeling and emotions then it seemed to me that 'fun', 'excitement' and 'spontaneity' indicated certain energy forms. I also

included as possible indicators 'debate' and 'creative'. These, however, suggest positive energy forms. What about negative forms? I included 'conflict' and 'anger' as clear indicators of negative energy but 'dispute' and 'tension' also suggested some negative energy. 'Argument' also suggested an energy that could be either positive or negative or a blend of both. 'Discussion' and also 'debate', 'dispute' and 'argument' suggested the presence of information flow (and also opinion). The flow of matter is also necessary if a system is to be self organising (Capra 1996). In human terms this means information and communication flows. Information coming into the teams provided the raw material for discussion and positive and negative energy reactions.

I was also looking for evidence of the types of emotions people associated with working with their team. How positive were their feelings? Did they identify with any of the emotions that might be associated with positive or negative energies? Did they find the experience 'stimulating' or 'unusual' (positive) or did they experience 'tedium' and 'boredom' (negative)?

How would they describe the team as a type of team? Did they see it as a 'traditional' possibly 'bureaucratic' one or one that was 'self organised' and / or 'empowered'. Did it operate in a 'routine' and / or 'orderly' way? Was it 'conforming' and / or 'cohesive'?

I was well aware that the choice of words had been limited but I deemed that 24 was sufficient choice if I was not to run the risk of overwhelming the respondents. To reduce the possibilities of bias I provided space for the team members to add in any words of their own. The choices made in completing this section would provide additional evidence that I could use to further build up the picture emerging from the responses to the first section of the questionnaire. This overall picture could then be used with the evidence from the interviews and the workshops.

6.2.3. The Workshops

I decided that workshops would provide triangulation and additional evidence gained from group interaction. I was aware too that I needed more evidence from non activists so that I could build up a more substantial picture of their view as a counterbalance to the views of the activists, and also at the same time strengthen the contextual background. To do this I decided to hold a half day workshop for non activists who had attended the 1994 New Directions Conference. The juxtaposition of their views with those who became activists after the Conference should make for useful comparisons. Also it would be a time effective way of obtaining their input. I had already decided to hold a workshop for activists for the reasons given earlier. Thus I held two workshops.

As I thought about the design of the workshops it occurred to me that here was a way of issuing the first questionnaire to not only the activists but more importantly those non activists I would not be interviewing. I was confident that they would all be returned.

The workshops were designed to explore four main themes associated with New Directions, the Conference (as a landmark event) and notions of change. These were:

1. Thoughts and Feelings at the Conference
2. Impact & Impression made by the Conference
3. Achievement - the Conference & New Directions
4. Change & Influences for Change (Non Activists workshop) / Working in the New Directions Teams (Activists workshop)

These themes are related to the clusters which were used in the interviews. These are shown in Figure 6.7.. In so doing they drew on the theoretical

framework provided by Stacey's (1992, 1993, 1996) work as discussed in Section 6.2.1.

The use of linked themes was important for two reasons. There had to be a clear connection between the activities in the workshop and the other research methods. Also the workshop had to make some kind of sense to the participants who would themselves see the pattern of the morning unfolding via the themes which I would describe and explain in my introduction.

Figure 6.7. Linked Themes - Interviews and Workshops.

Interviews' Clusters	**Workshops Themes**
1. The 1994 New Directions Conference	Thoughts & Feelings at the Conference. Impact & Impression made by the Conference. Achievement - The Conference
2. The New Directions Programme	Achievement - New Directions
3. The Conference Team & the Survey Team	Working in the New Directions' Teams (Workshop 2 only)
4. Organisational Change Initiatives	Would emerge from other themes + questionnaire 1
5. Perceptions & Notions of Change	Would emerge from other themes + questionnaire 1

6.3. The Primary Data Collection in Practice

In this section I describe how I used the different methods.

6.3.1. The Interviews

I decided to commence my interviews with three pilot interviews. These enabled me to refine my questions and my questioning technique and I have included them in my evidence.

Each interview lasted for about 2 hours. I began all my interviews by renewing my acquaintance with the interviewee and describing my research project. In all

cases there was real interest in my research and some discussion. Given that I was researching on the organisation to which we both belonged it was important that confidentiality was assured and I explained how this would be maintained. Without exception everyone I approached was very helpful and cooperative.

The interview proper began with an outline of the pattern the questions would follow and then some straightforward preliminary questions designed to help put the interviewee at ease and for me to check essential details such as: correct job title and length of service with the University.

I carried out all but 4 of my interviews in the autumn of 1997 thus I was discussing with the interviewees events that had taken place as much as four years ago. The memory jogger pack was put on the table at the start of each interview and I explained that it was there as an optional aide memoire. Several, but not all of the interviewees browsed through these leaflets at various points, usually to confirm a date or a workshop. The pack contained the following: a copy of the 1995 New Directions Calendar; a list of all the workshops and other activities,1993 -1996; Visualization workshop poster; *Open House* article on the 1994 Conference; *Open House* New Directions supplement, July 1995; *What is New Directions?* (pink leaflet); *Plans for Change* (yellow leaflet).

I made written notes of each interview but also used a tape recorder to supplement my written notes. When writing up the tape was used to check my notes for accuracy. The transcripts were sent to the interviewee for them to correct or amend so that in their view, they were an accurate record of the interview from their perspective.

6.3.2. The Questionnaires

Questionnaire 1 was given out either at the end of the workshop for non activists or at the end of each interview. At the workshop time had been allowed for completion but if this was not sufficient then participants had the option of taking it away and completing later. In the event they were all completed by the end of the workshop. All those given the questionnaire at the end of their interview chose to complete it in their own time. All were returned.

Questionnaire 2 was handed out to all team members at the end of their interviews and I explained how it should be completed. It was important that they ticked only those statements which, for them, described their team. I wanted to ensure as much as was possible that they did not see the questionnaire as one which was based on an 'either, or' premise, but rather one where there were many possibilities. All chose to complete the questionnaire in their own time. All were returned.

6.3.3. The Workshops

I invited 21 staff to the workshop for non activists: 9 administrative, 6 secretarial and clerical, 3 academic and three technical. These figures were based on the participation rates of each group at the Conference and on the basis that probably only about half would be able to attend. On the day 9 participants were expected but one was unable to attend because of a 'rushed job' which had come up unexpectedly. The eight people who attended included: one academic (lecturer), two secretarial and clerical staff, two technical staff, three administrators (one an assistant director, one project officer, one Students Services administrator).

The programme for the morning is shown in Figure 6.8. As individuals and groups everyone explored thoughts and feelings at the Conference using

Figure 6.8. Workshop Programme

NEW DIRECTIONS 1994 CONFERENCE ATTENDEES

WORKSHOP PROGRAMME

23rd September 1997

Introduction to Workshop

Introductions in pairs and trios

Thoughts & Feelings - at the Conference

Individual and Group exercise

Memory Jogging Session - video clips and publications

COFFEE BREAK

Participants asked to revisit individual and group exercise and to add to or amend anything on their lists.

Impact & Impression - afterwards

Group Exercise

Achievement

Group Exercise

Influence for Change

The Flow of Time Exercise

Questionnaires

Anything else? - A free discussion session.

'post it' notes to record them. After the Memory Jogging session when they had viewed video clips of the Conference, and, if they chose, consulted the Memory pack described earlier, they were given the opportunity to revisit their stickers and change them if they wished. Then as a group they discussed any impact they thought the Conference had made at the time and subsequently on themselves, on their colleagues, and on the University as a whole. This discussion they recorded on flip chart paper. A plenary discussion on 'Achievement' explored the main issues or themes that came out of the Conference and what happened afterwards. These were recorded on an electronic white board. The Flow of Time Exercise was an experiment with the

notion of time and change as a flow and in the event the individual drawings created were so different and so open to interpretation that I decided not to use this data.

The workshop for New Directions activists followed the same pattern as the first except that the 'Flow of Time' exercise was replaced with a group exercise in which the participants formed up into the two New Directions teams and discussed what it was like working in their team. Both teams approached their task with enthusiasm and produced considerable flip chart data.

Initially in both workshops the participants were slow to recall much of the Conference but as the discussion rolled so more recollections emerged. The video clips stirred many memories and there was animated discussion in all the group work that followed and considerable amounts of data produced.

6.4. Processing and Analysis of the Primary Data

The task of processing and analysing the primary data was driven by several considerations:

1. The need to sort and display the evidence in order to facilitate analysis in a way that treated the data consistently and fairly.
2. The facilitation of triangulation between the different methods of data collection and subsequent analysis, and later comparisons with the evidence from the secondary data.
3. The need to consider the data with reference to my research questions, and Stacey's key theoretical frameworks. Additionally, I would be looking for valuable insights relating to the human dimension that would enrich this framework and understanding of organisational change processes.

6.4.1. Interviews - Processing and Analysis

The first stage of processing the data consisted of gathering all the interview transcripts and extracting the responses on a question by question basis and assembling them in lists. The data was assembled into groups in accordance with the key areas of exploration discussed in Section 6.1 and described in Section 6. 2. and shown in diagram 6.3. This would later make for ease of comparison with evidence from other sources. Each interview / ee had a number against which a summary of their response to a question was written up, including any insightful comments. Coloured pens were used to highlight similar patterns of responses or clusters of meaning and associations. As regards the responses to the questions on the two teams, the lists were divided into two groups to show the responses of each team separately. See Example 1, Appendix 1. This enabled me to compare responses between the two teams and to look for differences and similarities.

To analyse the data further, stage two, it was displayed on a question by question basis in two different ways. Rich and varied qualitative data that could not be readily categorised was displayed in a matrix that included all the responses to a question. See Example 2 and Example 3 in Appendix 1. Example 3, for example, shows the responses the teams gave to a question about working with a mixture of staff from all categories. Using the matrix to display the data enabled consideration of the richness and variety of the responses and facilitated further written analysis. For example, it was possible to state that:

> 'The experience of working with a mixture of staff from all categories was described by the 1994 Conference Team as follows: 'good / great fun' occurs 3 times; 'enjoyable / enjoyed', 3 times; 'refreshing' twice.
> 3 respondents refer to the value of 'diversity' or 'difference / different' of

ideas, issues or points of view. Only 1 respondent had any difficulties and this was a secretarial member of staff who initially felt a little intimidated at the prospect of working with other staff who were more senior.

5 respondents in the Staff Survey Team identify the advantages of having a variety of views or different views and perspectives which they attribute to having such a mixed group. The experience / the group is described as a 'good' one by 3 respondents and 2 describe the group as working 'very well'. 2 respondents refer to 'lots of ideas / lively ideas'. 2 recall how they learnt more about the OU or other areas of the OU as a result of working on the Team. As in the Conference Team 1 respondent had some initial concerns about working with people he did not usually mix with.'

Other responses that were more easily categorised and analysed were compiled into simple lists showing the number of the same or very similar responses out of the total and differences were highlighted. See Example 4 in Appendix 1.

The final stage consisted of considering the analysis and interpretation of the data in accordance with the clusters or groups of related questions described in Section 6.2. This enabled me to write up my conclusions and insights with reference both to Stacey's (1992, 1993, 1996) theoretical frameworks and the human dimension of the organisational change process.

6.4.2. The Questionnaires - Processing and Analysis

Questionnaire 1 - Scaled Questionnaire

The data was processed and analysed in three stages. The first stage used the

questionnaire itself as a basis for a matrix for analysis. Two matrices were created: one to show the responses of the 'activists' or team members and the other the responses of the 'non activists' or participants. The matrix for the team members is shown in Example 1 in Appendix 2. The top figure in each column represents the response of the Conference Team members and the lower figure the response of the Staff Survey Team members. This matrix enabled considerations of any emerging patterns of similarity and difference between the two teams. The second matrix enabled considerations of the overall response from those who had not volunteered to take an active role, and to look for any explanatory patterns as well as views on change processes. Using these two matrices provided a simple way of comparing the emerging patterns from these two groups with findings on them from the other primary data sources.

The second stage involved setting up a levels of agreement matrix for each question and directly comparing responses to individual questions. This enabled me to compare the levels of agreement between the 'activists' and the 'non activists' or participants and also between the two groups in relation to the overall or total response. See Example 2, Appendix 2. This shows a very large measure of agreement between the different groups ie. 26 out of 28 agreed with the statement. But if there was any disagreement it was readily apparent and by referring to the individual questionnaires it was possible to consider the response further in terms of staff categories (Administrative, Academic. Secretarial and Clerical and Technical) and to look for any emerging patterns there. See Example 3, Appendix 2. Here, for example two technical staff and a secretary disagreed, all were 'non activists' or participants

The third stage involved considering all the evidence as presented in the first two stages and interpreting and writing it up in the light of the main themes discussed in Sections 6.1 and 6.2. This third stage enabled me at a 'thematic' level to link the findings from the scaled questionnaire with the other data

collected and analysed, and so assisted with effective triangulation.

Questionnaire 2 - The Teams' Questionnaire

As described in Section 6.2.2. the questionnaire had been designed in two parts and primarily sought for evidence of self organising and, or, self managing attributes. I decided to consider the evidence in the first part of the questionnaire by using matrices based on the different types of statement as follows:

1. Two matrices, one using statements using Stacey (1996) definitions of self organising teams and one statements using my own definitions. These would enable me to consider any evidence of self organising attributes and are shown in Chapter 9 section 4.
2. Two matrices on self managed teams, one using Stacey (1996) definitions and one using my own definitions. These would enable me to look for evidence of self managed attributes. Again these are shown in Chapter 9 section 4.
3. A matrix which contained all the statements designed to reflect attributes of traditional teams. This too is shown in Chapter 9 section 4.

Each matrix showed separately the response of the two teams, with the response from the Conference Team shown on the right of each box and the Survey Team response shown on the left.

Further, the first part of the questionnaire contained statements which were designed to explore some aspects of the experience of working in the two teams and also to compare this with working in other University teams. Again, simple matrices were used to display the responses and to facilitate analysis. See Example 4 in Appendix 2.

Use of these matrices enabled me to readily analyse the responses in relation to the theoretical framework and also to look for any significant differences

between the two teams.

The experience of working in the teams was further explored in the second part of the questionnaire but this time the respondents were asked to circle any of 24 words which they considered described their experience of working in the teams. Again the use of simple matrices enabled me to see the range of responses and to seek for patterns and emerging themes. A separate matrix was used for each team thus enabling useful comparisons to take place. These are shown in Example 5, Appendix 2. Each box in the matrix showed the number of respondents who circled that word.

Finally the questionnaires asked respondents to add in any words of their own that they felt described the way their team worked. Only 3 of the Conference Team and 4 of the Survey Team chose to do this. The words were listed in 'meaning' clusters under each team heading. These could then be compared with the results from the previous section of part 2 and contrary evidence, in particular, was sought.

Finally, all the analysis of the evidence on the two teams from the questionnaire was pulled together and written up ready to contribute to the overall insights on the nature of the two teams in relation to the theoretical framework described earlier.

6.4.3. The Workshops - Processing and Analysis

I decided first of all to analyse the evidence from the two workshops separately as one provided evidence on the 'activists' or team members and the other the 'non activists'. This approach would enable me to consider separately the data from the two groups and to look for similarities and differences as well as

emerging patterns and to relate them to the evidence on the two groups from the other data sources. The analysis was divided into 3 sections for Workshop 1 ('non activists'), and 4 sections for Workshop 2 ('activists') in accordance with the different exercises carried out by the two groups as follows:

1. Thoughts and Feelings at the Conference.
2. Impact and Impression made by the Conference.
3. Achievement - The Conference and New Directions.
4. Working in the New Directions' Teams (Workshop 2 only).

1. Thoughts and Feelings at the Conference.

The 'post it' notes for the first activity were collected together and arranged in two tables, one for Thoughts and one for Feelings for each workshop. A third table which combined both was used also for Workshop 2 as the group chose to set up this category themselves. Each table consisted of a 5 band 'spectrum' of views ranging from the more negative on the left to the more positive on the right. This enabled me to categorise the data according to attitudinal response and to look at the spread of the response and for clusters of meaning. The tables and initial analysis are shown in Example 1 and Example 2 in Appendix 3.

Throughout the tables I used the original words wherever possible though on occasion it has been necessary to summarise. The statements in bold text indicate that these views were expressed by more than one member of the group and I have selected the statement that in my view best represents their mutual views. The use of the tables made it possible to readily add in the additional observations made in Workshop 2 after the video clips had been shown.

2. Impact and Impression made by the Conference.

To analyse the data from this activity I collected the flip charts together and constructed a simple three column data table which displayed in tables the comments in clusters of association with the more positive to the right and the more negative to the left. Throughout the actual words written by the participants were used. Three tables were devised for each workshop as follows: Impact Personally; Impact on Colleagues ; Impact on the University. The tables are shown in Example 3 and Example 4 in Appendix 3. Example 4 also shows some preliminary analysis. Six tables were created in total.

3. Achievement - The Conference and New Directions.

The responses to this activity were recorded on an electronic white board and so the printout was used to construct a simple two column table which showed themes/ issues which had arisen from the conference and the programme on the left and any achievements or follow up actions on the right. Thus one table was created for each workshop in order to clearly display all the data and to facilitate analysis. See Example 5 and Example 6 in Appendix 3.

4. Working in the New Directions' Teams (Workshop 2 only)

The flip charts from the two teams were collected separately and the data was also processed and analysed separately. The comments from the Conference Team were displayed in a single box or chart and clustered wherever possible according to theme or close association. See Example 7, Appendix 3. The Staff Survey Team had laid out their comments under two headings - 'positive' and 'negative'. A simple two column table was produced using these headings to display the data prior to analysis (Example 7).

By using this approach it was easy to see all the data in two simple displays and so to look for strong patterns within each team and then to compare the teams. This approach facilitated comparison with other data on the two teams.

Having considered the evidence from the two workshops separately I then combined it on a topic by topic basis in order to compare and contrast the evidence from the two different groups - the 'activists' and 'non activists' or 'participants'. I devised two tables. One a three column table which summarised the main emerging themes. The other table was a three column table which summarised the issues and themes from the Conference and any follow up actions. See Appendix 3, Example 8. Working with these two tables and the more detailed tables and matrices already described I was able to complete my overall analysis of the workshops' data and write up my conclusions and insights.

Each of the three methods employed to collect the primary data was processed and analysed separately. In each case the last stage of analysis consisted of writing up conclusions and insights based on the key areas of exploration described in Section 6.2. which linked with the key themes of this thesis. Thus the primary data was also prepared for triangulation with each of the primary data sources and with the secondary data.

6.5. Secondary Data

Section 1 describes the thinking behind the selection of the three sources of secondary data and why I decided to use all three sources: internal OU records and documents; *Open House*, and the IES Research Project. Each of these sources is discussed in separate sections which follow. Section 6 briefly describes how the data was processed and analysed.

6.5.1. The Thinking behind the Secondary Data Collection

Obviously, in carrying out a case study on my own organisation I have ready

access to internal documents and records. Further, because of my role in the organisation, as head of training and development during the period under study, I am aware of the considerable amount of information which was collected and stored as part of the training department's record keeping and information systems. This included the files on all the meetings and events connected with the New Directions programme and the 1994 staff survey. These included files on the 1994 Conference Team, the Staff Survey Team and the 1995 New Directions Action Group. These files held agendas / to do lists, action notes / minutes of meetings, and a wide range of correspondence including memos and emails, and aiso printed materials such as leaflets and reports. These latter files are particularly rich sources of data as I was involved in all these groups and kept full records and lots of personal notes.

Another very rich source of information is the University in-house newspaper, *Open House*. It is published 6 times a year and distributed to all staff. This contains information on the wide range of activities going on in the University and gave considerable coverage to the New Directions programme. The University also publishes a students' newspaper *Sesame.* They have a tradition of criticism of University top management decisions.

As well as all the data derived from internal sources there is an important piece of data from an external source, the Institute of Employment Studies for Sussex University. The IES carried out a case study on the New Directions programme in 1996 and the file on the project contains details of the case study approach, correspondence, faxes, and various drafts of the final report entitled, *Learning to Manage.* The IES study was carried out in the last year of my case study period and thus provides an independent assessment of the programme, its activities and achievements from the perspective of some three years after the programme began.

Given the enormous amount of secondary data available on the New Directions programme I had to decide how to make best use of it without becoming overwhelmed in the detail or losing focus. I decided, therefore, with some major exceptions, to use the data in the training records systems and my own files to set the background and context of the programme and to describe and verify events and activities. These have therefore, been drawn upon in writing Chapter 7, New Directions and the Open University and details of the sources used are shown in Appendix 4. Any other use of these files would be kept to a minimum.

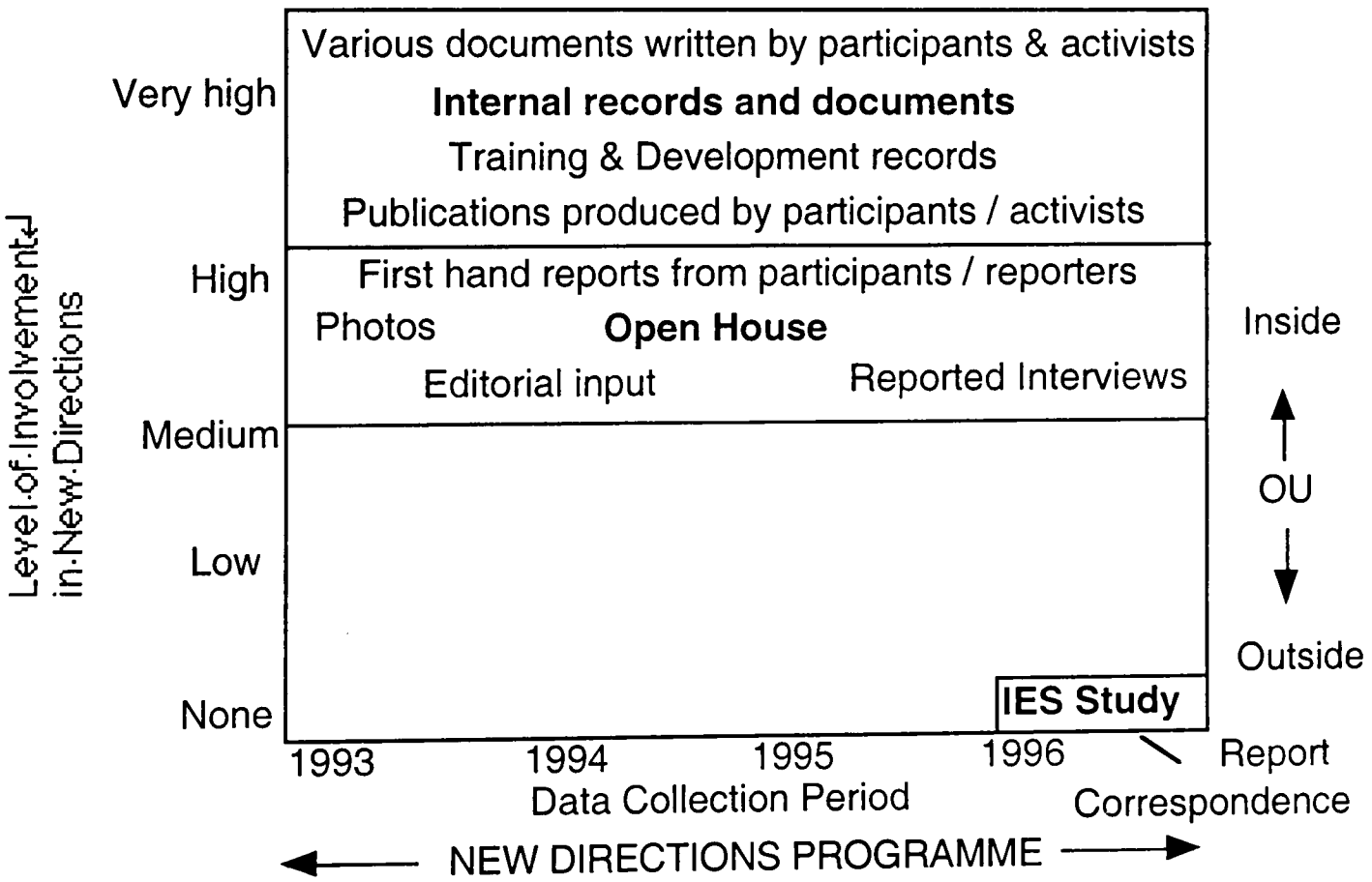
Open House provided a source of data outside the training and development section and thus a more independent source. It also contained a commentary on events by members of staff including key players like the Pro Vice Chancellor, Strategy and the 'chair' of the 1994 Conference Team. The data also showed people's views and feelings on events either at the time or very shortly after they had happened.

Thus I have three major sources of secondary data. Two are internal to the organisation and one of these is internal to the department that supported the programme. The third source is external. The external source is completely independent and unlikely to be influenced by the organisation. Thus in terms of proximity to the programme we have: very close, close and remote. In terms of time perspective we have: real time, close to real time and some time afterwards on a scale of from three years to some months. I have tried to encapsulate and show all these aspects in the Figure 6.9. overleaf. It shows the 3 sources of secondary data, how they relate to the New Directions Programme from the perspective of involvement and data collection time span and whether they are internal or external sources and also the type of data.

But there is a further dimension to the use of these data sources and that is that

each source is very different. One is an information / record keeping system, the second an in-house newspaper and the third an independent research study. Thus they all collected data in different ways and for different reasons and purposes. It seemed to me that by using three such different sources of secondary data I would gain a wide perspective on events and a rich source of commentary and interpretation. Thus there is data that is spontaneous (ie. personal meeting notes and off the cuff quotes) and intentional (internal reports, leaflets and reports for *Open House).*

Figure 6.9. Secondary Data.



6.5.2. Internal Records and Documents

Most of the data stored in the New Directions files kept by the Training and Development section is routine factual information relating to the organisation and administration of the workshops. But there is also a range of 'spontaneous'

correspondence and personal notes as well as notes of meetings. Some of these documents provide insightful evidence of the thoughts and feelings of people at the time. An important source of data contained in these files are the write ups / reports of all the New Directions workshops. These are based on the flip charts drawn up by the attendees and used to give their presentations of their thoughts and ideas to each other and the PVC, Strategy. The files also include copies of internal reports and printed materials many of which were distributed to the staff of the University. Again the main use of these internal documents and records was to provide the data used in Chapter 7, New Directions at the Open University. Those which offer particularly valuable evidence and which I have drawn upon in my case study analysis are included in Appendix 4 and indicated with an *.

6.5.3. *Open House*

The University's in house newspaper contains a wealth of information and observation on the New Directions programme and the University's response to it. It created an information channel through which news and views about the programme was conveyed to staff and as such it also created an important feedback loop between individuals and the programme itself.

How much coverage did *Open House* give to New Directions? Figure 6.10. shows the number of issues containing articles or reports on New Directions between 1993 and 1996. The chart shows how coverage rose from inclusion in 3 issues (out of a total of 6 per year) in 1993, when the programme began, to 5 issues, a peak in 1994. 1994 was the year of the Conference and the year when Open House gave maximum coverage of the programme. A high level of interest is sustained through 1995.

Figure 6.11. over leaf shows the amount of coverage given to New Directions

each year measured in column inches. This shows that greatest amount of column inches was in Year 3, 1995, followed by 1996. In each of these years a four page pullout supplement was produced by the New Directions Action Group for one of the issues of the newspaper.

Figure 6.10. *Open House* - Coverage Frequency.

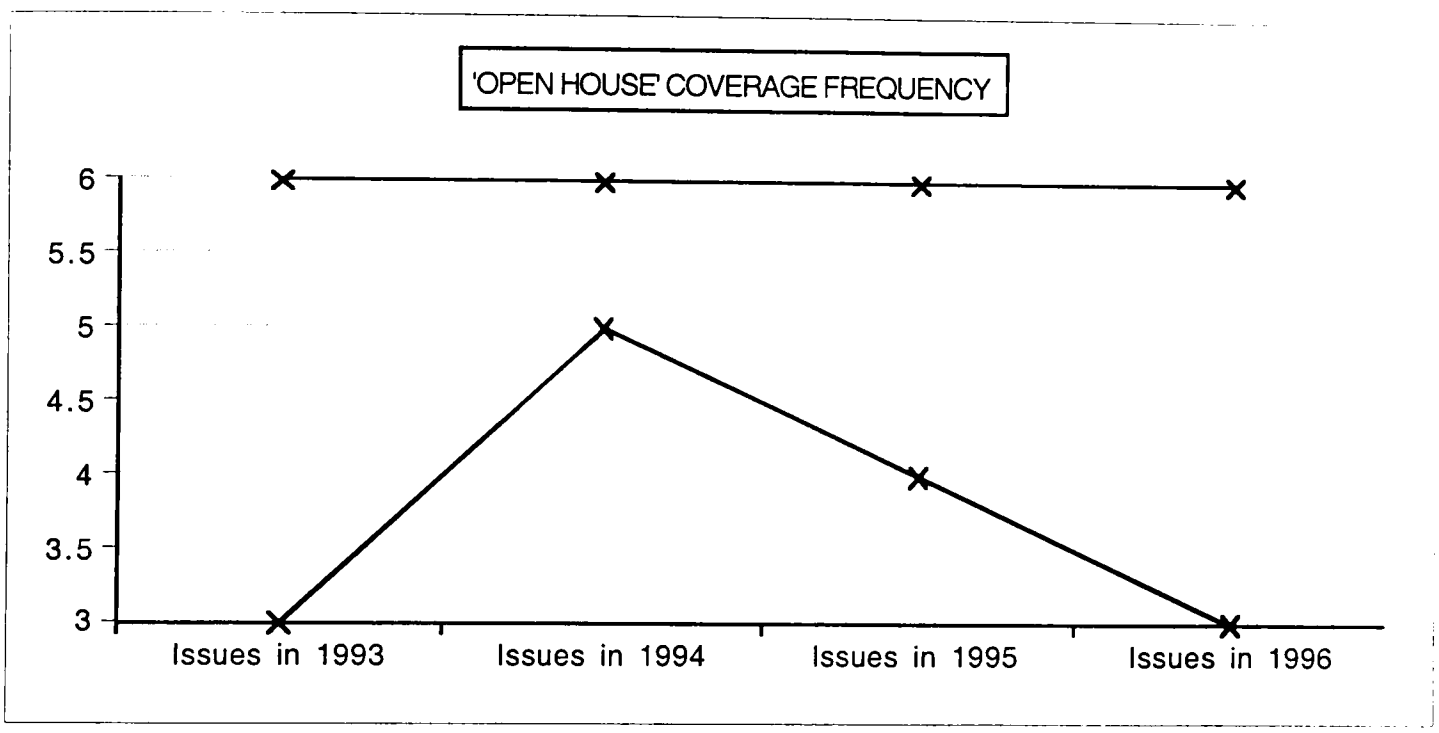
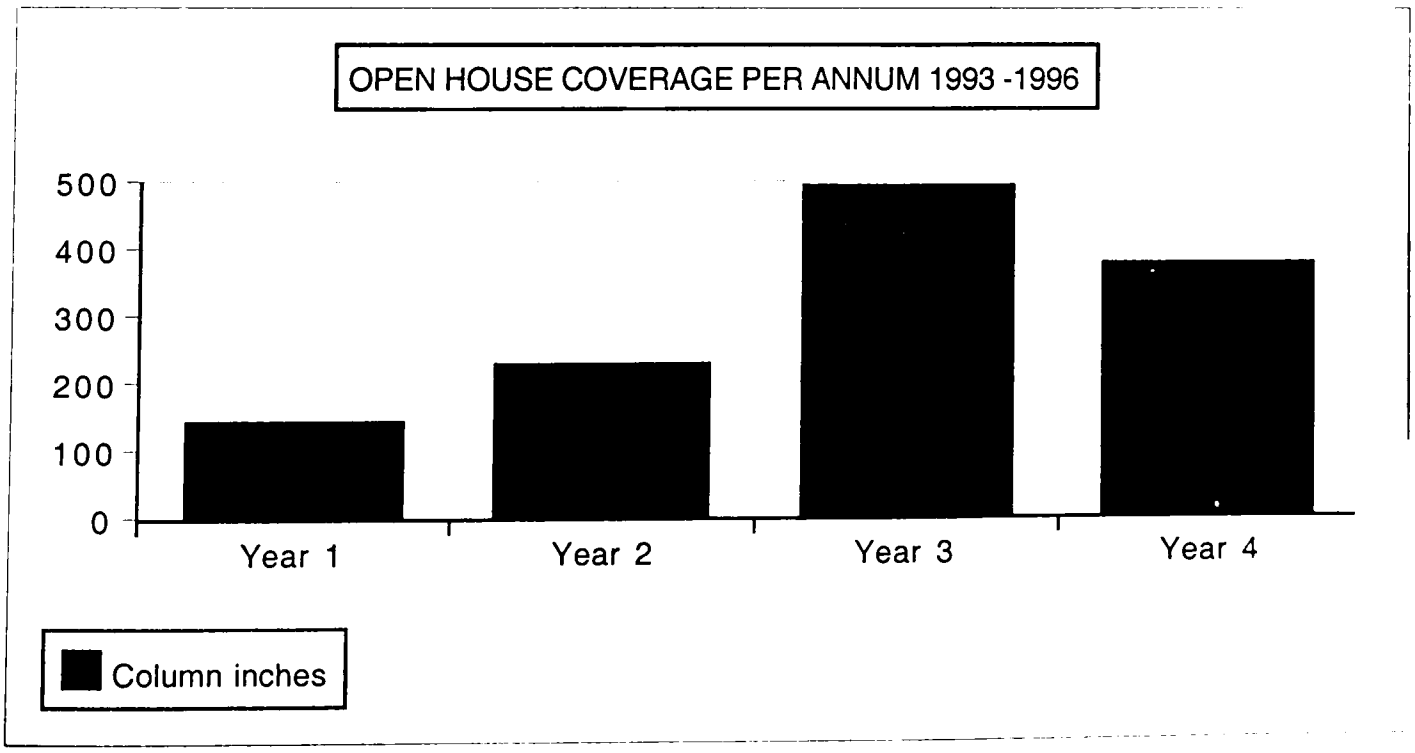


Figure 6.11. *Open House* Coverage Per Annum 1993 - 1996.



As the figures show *Open House* is a particularly rich source of data on New

Directions and its impact on the University. One edition of *Sesame* the students' newspaper contained a report of a New Directions workshop for students and this has been included in the data because it provides a unique piece of evidence of how students reacted to the programme.

6.5.4. The Institute for Employment Studies Research Project

Following the publication of an article on New Directions *Putting Theory to the Test at the OU*, (Russell and Parsons 1996) I was approached by the Institute for Employment Studies, who asked if they could carry out some research on the programme as part of a learning organisation research project. The research sought to examine the links between individual and organisational learning and concentrated on managers involved in a 'deliberate intervention'. It sought to discover 'what makes a difference' and 'what has the power to change the way individuals behave, and possibly the way organisations operate.' The overall aim of the research approach was 'to create a 360 degree view of the impact' of the intervention or development programme. Four other organisations had agreed to participate in the research.

The research at the University took place over two days in April 1996. It involved a series of semi-structured interviews carried out on a 1:1 basis with 10 members of staff from different categories and locations for approximately an hour each. Each one had attended one or more New Directions event. Each interviewee was asked a range of questions about their experiences of New Directions and their thoughts and feelings about the programme. They were also asked about any impression they thought the programme had made on themselves, colleagues or the rest of the University. Each interviewee was also given a bipolar semantic differential questionnaire which further sought to explore their feelings about the programme. They were asked to complete it first from the perspective of when they were close to the events and then again as

they felt in the present.

Two focus groups were also used. One was composed of the line managers of the interviewees. The other of those who either reported to the interviewees or were junior colleagues. The focus groups were asked about their own experiences of New Directions, if any, and what were their views on the programme. They were also asked to describe the impact of New Directions on their colleague (the interviewee), other colleagues and the University as a whole.

In August 1997 I received a letter and some extracts from the draft report. The letter contained a number of statements about the New Directions programme two of which I used as the basis for 2 questions in my interviews. These were used to test out people's understandings of the nature of change. I received the final draft of the Report entitled *Learning to Manage* in May 1998. It contained a wealth of data on the New Directions programme as seen through the eyes of both participants and non participants, interesting and insightful comments from the respondents and a number of significant observations made by an independent researcher on the programme its impact and outcomes.

6.5.6. Processing and Analysis

The data from internal records and documentation and Open House, the two internal sources, was collected by careful reading through of all those papers which covered the life cycle of the New Directions programme and any references to it immediately prior to the programme or immediately afterwards. Relevant data was selected either on the basis that it would provide background and context to the programme and would contribute to Chapter 7 or because it was relevant to the main themes of this thesis. Thus all the relevant data was collected and categorised according to the main clusters of exploration

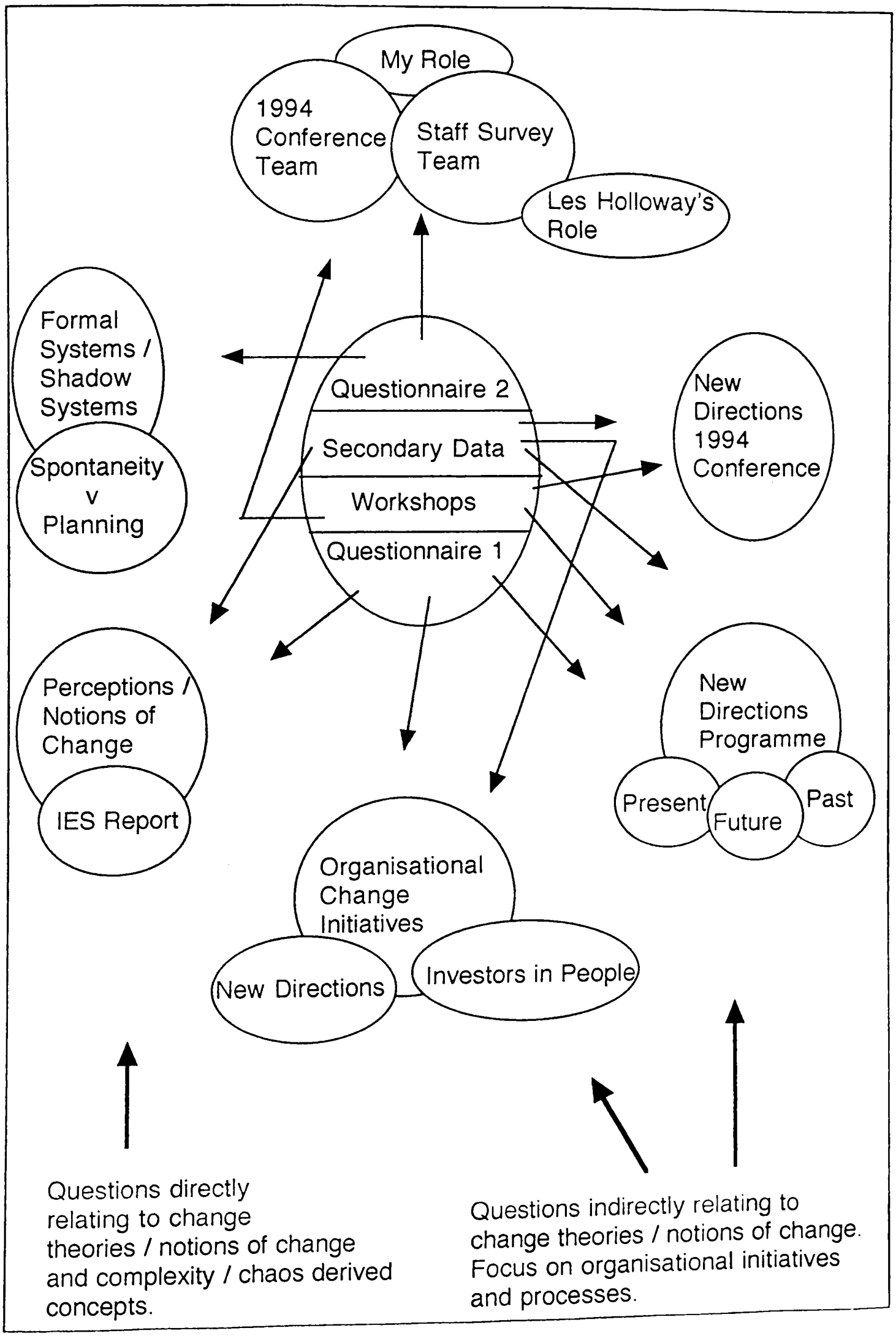
described in 6.2. and shown in Figure 6.3. The data from the IES study was also extracted and assembled on the same basis. Thus it was possible to map all the secondary data onto the main themes under investigation and to facilitate triangulation between them and with the primary data.

6.6. In Conclusion

As (Robson 1993) points out when analysing qualitative data validity is always a cause for concern. It is for this reason that I used multiple methods in order to test one source of information against another and cross-validate. This was particularly important given my closeness to the research topic. Figure 6.12. overleaf shows how the different methods covered the main areas of inquiry which formed the basic themes of the interviews. Thus the final stages of the analytical process included extensive comparisons between the data displays and written analysis for each method using the framework of enquiry described earlier in this chapter and interpreted into clusters of exploration as shown in Figures 6. 6. and Figure 6.12. The first stage of this process involved several processes as follows:

* Close comparisons whenever possible, as for example, between questions on the Scaled Response Questionnaire and the Interviews, see Figures 6.4. - 6.6.
* Comparisons between matrices and other data displays
* Comparisons between written data analyses
* Measurement and consideration of the frequency of occurrence and strength of themes or patterns.
* Searching for discrepancies and contradictory evidence and re checking the evidence as necessary.

Figure 6.12. Triangulation / Interview Themes



Throughout this process extensive use was made mind mapping to note comparisons, add observations, to log any major points, such as contradictory evidence, and to record any new patterns or themes as they emerged. This part of the process was invaluable in feeding into the next stage whereby the written conclusions and insights for each method were extensively compared with each other and also cross checked for internal validity against the revisited analysis carried out in stage one. Overall the different sources fed back the same messages and cross-validated each other.

This then fed into the final stage of the process which was essentially a reflective one. It involved taking a broad overview, or a holistic stance in considering the revisited data conclusions and interpreting them in the light of the key questions of this thesis and the theoretical framework and looking for insightful answers and any emerging hypotheses. This stage in the process provided the framework for the interpretations and conclusions given in the chapters that follow. Further, it was at this stage in the process that the notion of a *transition* approach to strategy and how it might be modelled first arose. By using reflections on Chapters 3, 4 and 5 and weaving them together with the data conclusions a pattern of process began to emerge which was refined over several iterations into the *transition strategy model* which is described in Chapter 10.

CHAPTER 7.

NEW DIRECTIONS AT THE OPEN UNIVERSITY

The purpose of this chapter is primarily descriptive in order to provide the background and context for the case study, the New Directions programme at the Open University during the period 1993 to 1996. The chapter describes the Open University itself, its history, structure and culture and the setting for the New Directions programme, as well as the main activities and events of the programme itself.

Most of the data for this chapter was drawn from a range of internal documents including: records kept by the Training and Development unit, Personnel Division, internal correspondence, diary notes, reports, formal and strategic documents, electronic messages, *Open House,* the University newspaper, and various OU publications, as detailed in Chapter 6.

7.1. The Open University - A Brief History

The Open University is an institution that should never have happened. Walter Perry (1976), the University's first and pioneering Vice Chancellor, describes his own early views as follows:

> 'I regarded it as a political gimmick unlikely ever to be put into practice, and likely, if it were, to produce only a few graduates of relatively poor quality.'

But events and his own energy and commitment were to prove his original views to be so wrong.

Perry (1976) observes that:

> 'The concept of the Open University evolved from the convergence of three major postwar educational trends. The first of these concerns developments in the provision for adult education, the second the growth in educational broadcasting and the third the political objective of promoting the spread of egalitarianism in education.'

The OU was born during the Wilson Labour Government and derived from Harold Wilson's notion of a 'University of the Air'. He originally saw this as a consortium of the existing universities which would develop broadcasting and correspondence methods to teach adult students in their own homes. In 1964 he asked Jennie Lee to take responsibility for it and her energy and dedication led to the creation of an 'independent university, offering its own degrees, making no compromise whatever on standards and offering an opportunity to all, without any entrance qualifications' (Perry 1976).

The Open University was granted its Royal Charter in April 1969 and the first 24,000 students were admitted in 1971. By the mid 1970s there were over 50,000 undergraduates and a wide range of courses of study on offer. In 1983 the Open University Business School opened with 974 students. By 1994 it had grown to over 20,000 and is now the largest business school in Europe.

By the mid 1990s the OU had more students than any other UK university and by 1994 over 157,00 people had graduated from the University since 1972. The number of people studying with the Open University in 1994 was as follows:

Undergraduate level students	132,774
Postgraduate level students	10,339

Total registered students	143,173
(OU Fact Sheet Number 1)	

In 1993 the University took over the role of the newly disbanded CNAA in validating awards for colleges and other institutions. In 25 years it had succeeded in becoming the largest university in the UK.

7.2. Students, Teaching and Research

Students

Most Open University courses do not require any entry qualifications and over one third of people entering the University have less than 2 'A' levels. Some 70% of students continue in full time employment while they are studying. OU students come from a very wide range of occupations and all age groups, but two thirds of them are aged between 30 and 49 (Open University Facts & Figures 1995/96).

Teaching

The OU's teaching is based on using distance methods that bring learning directly into the homes or workplace of its students. The use of this approach has meant the development of a wide range of high quality materials suitable for learning at a distance. These are further enriched by the provision of face to face and telephone tutor support, and residential elements.

The University not only delivers its courses in a way that is very different from traditional university teaching but it has developed them in an innovative way. The OU uses a team approach to course development. The team consists of a number of academics who will create and write the materials that form the basis of the course. Alongside them in the typical team will be an editor, a designer, a

BBC producer, a course manager and other team members necessary to ensure the production of a high quality course. This method of working together has been found to produce courses that are often superior to courses produced by single academics (Daniel 1995). Daniel further notes that the evidence for this comes not only from the achievements of students but also the views of other academics regarding 'intellectual vigour'. Walter Perry (1976) observed too that:

> 'The concept of the course team is, I believe the most important single contribution of the Open University to teaching practice at the tertiary level'.

Research

The OU views research as part of its academic lifeblood and an essential basis for the production of excellent teaching materials. There are approximately 1300 research students at the University with some 500 studying full time. The Higher Education Funding Council for England recently (1996) recognised 19 subject areas at the University as producing research work of international excellence and another seven were rated as nationally excellent.

In 1995 the University set aside £10 million to invest in new technology developments. Part of this money was used to set up the Knowledge Media Institute which aims to become a leading research institute into the development of new technologies for teaching and research.

Programmes of Study

The University offers a wide range of undergraduate courses including BA and BSc degree programmes offered by the University's six faculties or schools: Arts, Social Sciences, Education, Mathematics and Computing, Science, and Technology. The University provides a range of higher degrees including an

MA in Education and the research based degrees of BPhil, MPhil and PhD which are studied on a full time or a part time basis. Management and business studies programmes are offered by the Open Business School. In addition to its graduate and post graduate programmes the University provides professional training in the areas of manufacturing and computing, education, health and social welfare. A wide range of study packs and short courses are also available.

The University continues to expand its curriculum and in 1995 the Centre for Modern Languages offered its first courses with over 2,000 students studying French and in 1997 the University launched it first courses in law. Further it now offers teaching on an international basis.

7.3. The Open University's Structure

The University is governed by two bodies: Council and Senate. Council has responsibility for all financial and employment decision making while Senate is responsible for all academic matters. The next tier of the University's structure is formed by a number of major committees. These include Academic Board, which acts as the executive for Senate, the Strategic Planning and Resources Committee and the Operational Planning and Budget Committee both of which report to Senate and Council. Figure 7.1. shows the structure in 1996.

The Chief Executive of the University is the Vice Chancellor and his senior management team consists of five Pro Vice Chancellors. The University Secretary heads the administration of the University which comprises of five main divisions: student administration, academic administration, finance, management services, and estates. The University has 13 regional centres in the UK each headed by a director. The centres are largely responsible for the

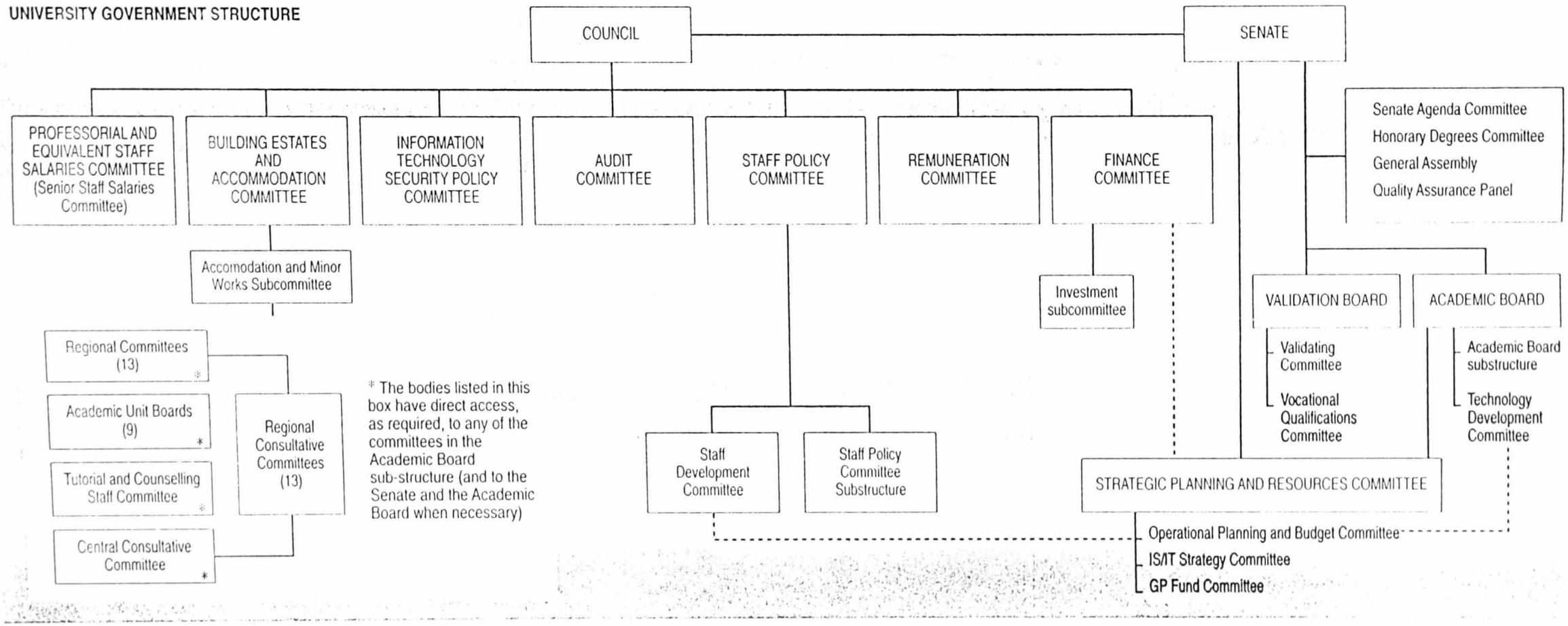


Figure 7.1. University Government Structure

admission, tuition and counselling of students. The centres appoint and supervise approximately 7,300 associate lecturers who provide tutorial and counselling support. Figure 7.2. shows the management and administrative structure of the University and the Pro Vice Chancellor posts in 1996.

This diagram shows only a top slice of the layers of the organisational structure and further complex sub structures continue on down through the hierarchical layers that create the management structure of the university. A huge administration sub structure consisting of 11 divisions or departments all reporting via the University Secretary to the Vice Chancellor carries out the non academic functions of the University. See Figure 7.3. Within each department there are further layers and linear structures each reflecting the overall design of the University.

The three diagrams show an organisation structure that is in the classical, bureaucratic form (Morgan 1986, Pedler at el 1991). The structure is centralised, functionally specialised, and hierarchical in accordance with Fayol's classical management theory (Dessler 1980, Morgan 1966). The classical bureaucratic organisation works well in stable conditions but it is slow to change (Pedler at el 1991) and the University has had to adjust to major changes. It has moved from a largely UK based, open access undergraduate degree system with 6 teaching faculties in the mid 1980s to an international institution with postgraduate provision, a successful business school and 10 teaching units in the 1990s.

The diagrams displayed and the structure shown represent the formal and official structure of the University but as with many large bureaucracies there are a number of internal networks that survive and enliven the organisation. They are often the lifeblood that keeps the organisation productive and Costello (1992) points out that much of the business of the University is conducted

University Organisational Structure

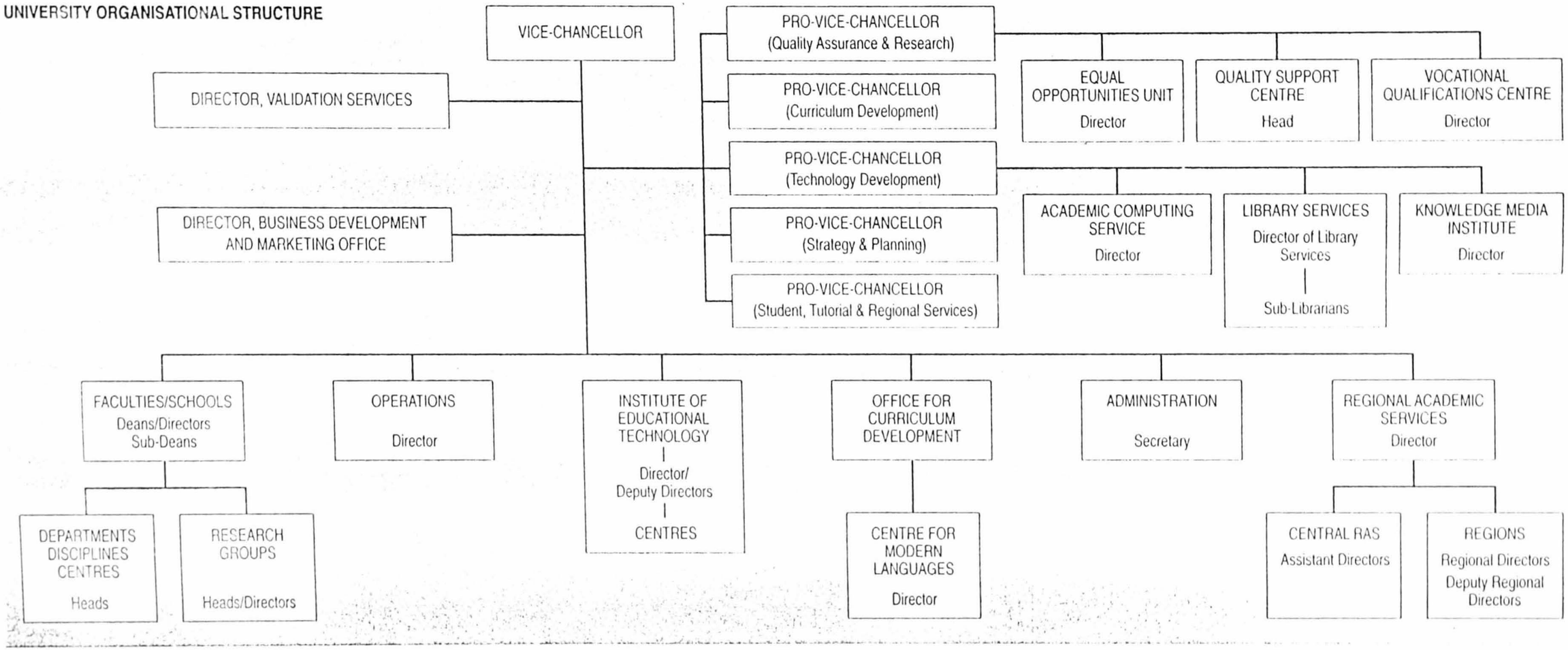


Figure 7.2. University Organisational Structure

Administrative Structure

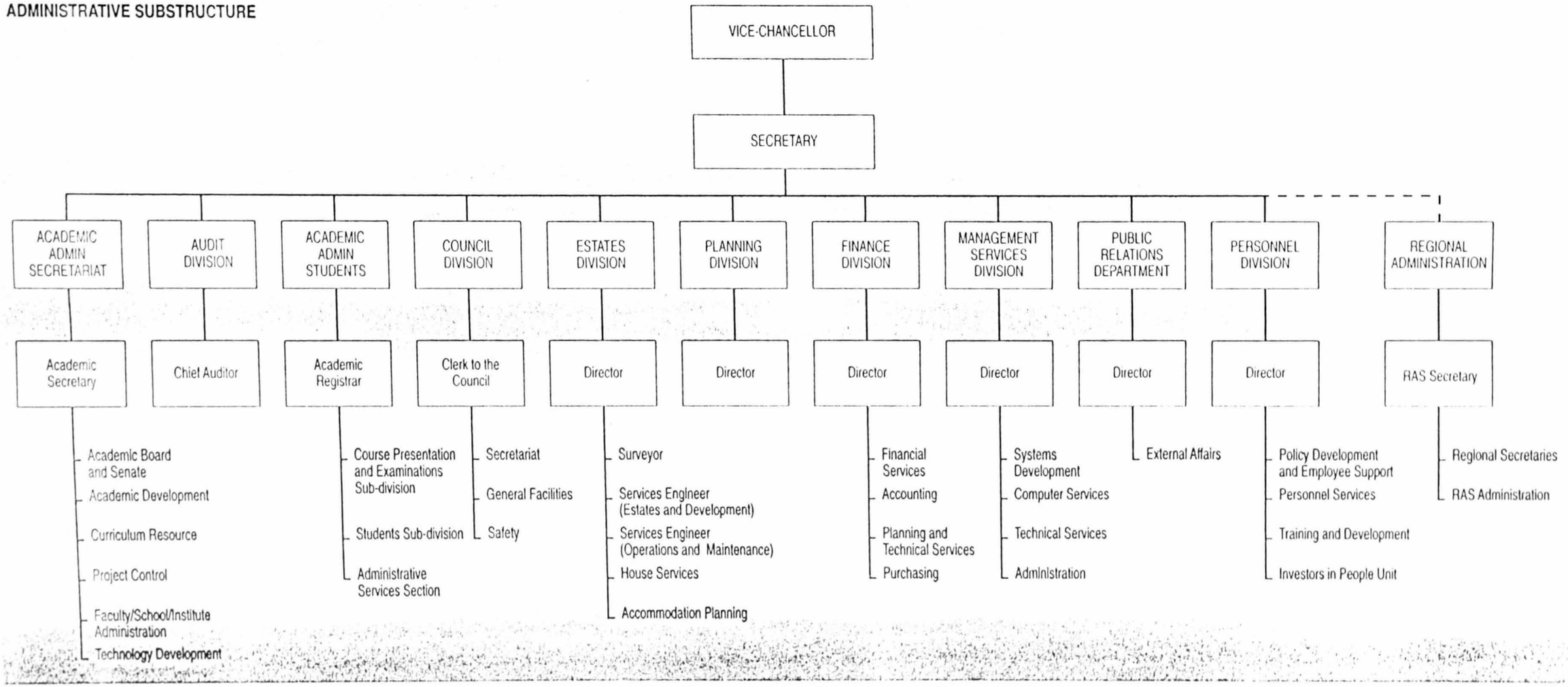


Figure 7.3. University Administrative Substructure.

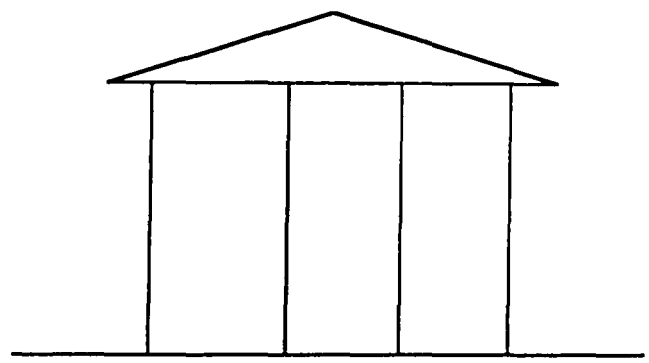
outside the formal structures. Within the faculties the course teams are the creative engines for the production of new courses and teaching approaches. Likewise within the administration there are small groups that try to speed up the more cumbersome processes and invent new and creative ways of addressing old problems. There are strong personal relationships and alliances which ignore the traditional structure and oil the wheels of the organisation.

7.4. The Open University's Culture

The three diagrams showing the formal structure of the OU demonstrate clearly the complex, hierarchical and linear nature of the governance and organisational framework of the Open University. This fits very neatly with Handy's (1993) model of the role culture which is typified by the image of a Greek temple. See Figure 7.4. below.

Figure 7.4. The Role Culture adapted from Handy (1993).

The Role Culture or Greek Temple



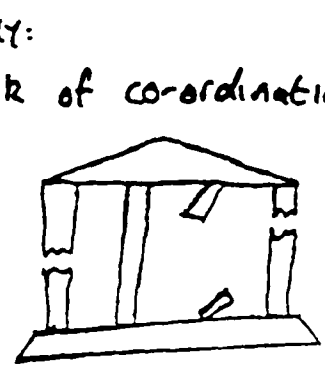
Adapted from Handy (1993)

As Handy (1993) points out this type of organisation is controlled by the culture of reason, and logic and rationality appear to prevail. Like all bureaucratic forms this kind of organisation can work very well in the right circumstances. It is particularly good where economies of scale are important as is the case with the University which needs to mass produce its courses in order to ensure their economic viability. It can also be very effective, as Handy (1993) points out,

where the market for its products is stable and predictable and the product has a long life cycle. But the danger comes when the environment changes. Such organisations need stability to flourish. As Handy observes 'Greek temples are insecure when the ground shakes.'

Interestingly, in several of the early New Directions workshops in 1993 delegates would sometimes picture the OU as a dinosaur, lumbering along, slow in its responses and out of touch with reality. Others saw it as a Greek temple in a state of decay. At the New Directions Conference in May 1994 one of the five groups of delegates making their plenary presentations to the Conference showed an overhead slide of a dilapidated Greek temple. See Figure 7.5.

Figure 7.5.



This was accompanied by the following comment under the heading of Marketing:

> 'The group felt that this indicated that there was a lack of co-ordination and that no information was available on what one unit was doing in marketing, and the resultant course production, and what another was doing. The analogy was that we have a Greek temple hierarchy which had decayed over twenty-five years and in which communication is bad'.

Handy (1993) notes this kind of organisation is slow to see the need for change and slow at responding even when the need is perceived.

Neil Costello a Staff Tutor for Social Sciences based in Region 6 (Cambridge Centre) studied the Open University as the subject of his dissertation: *Strategic Change and the Learning Organisation* for his MPhil which he obtained in 1992. His paper provides a rich source of data and observation on the University. He comments on the 'strong over-arching' nature of the University's culture but sees it as consisting of three broad but distinct sub cultures. The academic areas he calls the 'creative areas'. Much of the work here is carried out by small flexible teams who usually work for a period of three or so years together to produce a course and then break up. 'Power is based on expertise and line-staff distinctions are effectively non -existent' (Costello 1992). These areas and their interface with the rest of the University is managed by 'a changing cadre of peers'. Costello notes that these areas have suffered from staffing reductions since the 1980s and accompanying increases in workloads and responsibilities.

The second subculture Costello identifies is that of the 'Operations and Administrative Divisions'. The Operations Division works very much like a publishing house and the Administrative Divisions carry out many of the tasks of a conventional university. However, although their functions are quite different they both have strong bureaucratic structures and cultures. Job and tasks are clearly defined and the procedures followed. There is little room for spontaneity and unfettered creativity. The need to get the job done is paramount and reliant on a stable environment. Costello observes that 'tensions arise therefore between those who seek to change, or wish to experiment, and those who have to deal with the consequent organizational complexity.'

The third broad subculture Costello identifies is: 'The Regions'. Staff from the 'creative areas' and the administration work very closely with the regions and

closely identify with their own region. The over riding focus of each region is to provide a service to the students and they more than any other area of the University come into close contact with the student body. The management of the Regional Centres is a complex one. Many of the senior staff have a dual line responsibility both to their Regional Director and to their Faculty. This may lead to tensions and even conflict on occasions. Costello (1992) notes that:

> 'The supportive team atmosphere when things work well is spoken of with great affection, usually in the context of the creativity in support services to students which becomes possible. On the other hand the structural relationships in which staff find themselves are potentially very fragile and can be a major source of discontent.'

The culture of the Open University is difficult to define in a neat way. It is both complex and complicated and is a richer and more diverse than the three sub cultures described by Costello would suggest, and it should be noted that Costello (1992) was not able to include other than managers within his study. Inclusion of all the other many roles, categories and grades would colour even further this already rich picture. Overarching all this and at the same time threading through all aspects of University life is its long held values of openness and democratic participation.

7.5. The Open University in 1993 - the year New Directions began

This section focuses on events, internally and externally, that influenced the inception of the New Directions programme and describes the situation around 1993 when the activities began.

7.5.1. Funding and Environment

In 1993 the University's funding arrangements changed significantly. It now became part of the newly integrated funding arrangements for higher education in the UK. Whereas it had previously been funded directly from the Department of Education, from now on it would receive its core grants from the Higher Education Council for England. The HEFCE block grant of £104 million for 1993/4 represented 57.7% of the University's total operating budget of £180.4 million. £58.8 million fee income from students represented 32.6% of the total budget (OU Fact Sheet Number 1).

The change in the funding arrangements had major implications for the University. Firstly, it meant that the OU was now in direct competition for funds with other universities. Competition was likely to be high. Secondly, for the first time in its history the University was now able to build up some capital reserves. Previously any unspent monies had to be returned to the Department of Education. Under this system the OU had no capital reserves to fall back on in hard times and also no real incentive to save money or to create entrepreneurial income. The new arrangements changed all this. It would be in the OU's favour to be more businesslike. Further, the way the funding system was now set up meant that if the OU expanded its student numbers then it would attract significantly more income.

The University's external environment had changed in many ways since the 1970s and early 1980s. In those days many higher education institutions had poured scorn on the idea of effective distance teaching. Now, however, their attitude was very different and very many of them and also many local FE colleges were offering substantial programmes of distance learning courses. Many potential OU students were being attracted away from the OU to other, often more local, providers. Further, many aspects of traditional distance

learning delivery were under challenge from new developments in multi media teaching and the use of the new technologies. Was there a danger that the OU was about to be left behind?

Changes in the funding arrangements and all that this implied along with recognition of the changes in the OU's external environment were to be reflected in the University's new strategic plan.

At this time the University decided to aim for the Investors in People standard and set up a well funded unit specifically to develop communications, training and appraisal to the levels required by the standard.

7.5.2. Plans for Change

In the summer of 1992 the University's Strategic Plan was approved by Senate and Council. It identified the central purposes of the University and set down the strategic aims and goals over the next decade, with particular focus on the first five years. In March 1993 the Planning Office issued the final draft of *Plans for Change*. This set out the major initiatives which the University would take over the coming five years in order to support the aims and achieve the goals contained in the Strategic Plan.

Thus *Plans for Change* was the University's action plan. It was the template which guided all the University's departments and by which senior officers were to frame and prioritise their activities. It listed 8 key points as the University's priorities for development for the period 1993 to 1997. These rank ordered priorities were as follows:

Priorities for Development 1993 - 1997

1. Expansion
2. Efficiency
3. Resilience
4. Quality
5. Research
6. Admission and Retention
7. Curriculum Enhancement
8. Qualifications

Most significantly *Plans for Change* , 1993 - 1997, recognised that if all these priorities were to be achieved then there would need to be changes in working practices on a University wide basis. Further, these changes needed to 'enable all staff to play a full part in the achievement of the University's strategic objectives.'

Thus there was recognition at a strategic level of the importance of involving all the people employed by the University in working to realise the University's aims for the future. But what were the differences in working practices and the changes sought? The Plans set out 6 'dimensions' and for each dimension they gave a 'direction'. These six paragraphs create the New Directions section of *Plans for Change* and inspired the title of the programme of events and activities that arose in 1993.

<u>New Directions 1993 - 1997</u>

1. From Long to Short response times
2. From Complexity to Simplicity
3. From Provider-led to Customer-Centred Provision
4. From an Expenditure to an Income Culture
5. From Centralism to Subsidiarity
6. From Quality Control to Quality Assurance

Each dimension with its accompanying direction cuts at the inflexible, cumbersome heart of the University's organisational systems and practice. But how would it achieve this major undertaking? *Plans for Change* provided an answer. It states:

> 'It is intended that the full benefit of these changes of approach will be achieved through a process of awareness-raising, staff development and management action at institutional and unit level in which all staff have an opportunity to participate.'

Here lay the raison d'etre for the New Directions programme. The key phrases were 'process of awareness raising, staff development' and 'in which all staff have an opportunity to participate'. These were three of the core tenets of the New Directions programme. It sought to raise awareness, to develop people and to involve <u>all</u> staff. These were the ways in which it sought to help the University achieve its strategic aims. This was its legitimate purpose and its role as described by the formal systems of the University.

7.5.3. People

Costello (1992) points to the powerful roles played by the University's three Vice Chancellors: Walter Perry, John Horlock and John Daniel. Under Perry the University sought to establish itself and to develop challenging new conventions in education. Under Horlock it went through a period of consolidation when in Costello's view it became in many ways more conventional in its approach and 'established a more hierarchical system of management.' Then John Daniel was appointed in 1990 after a period when the University had been 'subject to resource reductions for over a decade' (Costello 1992). He brought with him an enthusiasm for distance education and a vision of a much expanded university.

Thus there began in the early 1990s a major shift in the University's vision of itself in the future. This was further reinforced by external changes - the change in the funding arrangements, competition from other higher education institutions in an expanded HE sector and the challenges posed by developments in the new technologies and the emerging notion of knowledge media.

In August 1991 a new Pro Vice Chancellor, Strategy was appointed. The new PVC was a senior lecturer from the Systems Department and had been Dean of the Faculty of Technology. His appointment coming so closely after the appointment of an energetic and dynamic Vice Chancellor with a powerful and potent vision of the future for the OU was in my view to have a major impact on the University. Geoff Peters, PVC, Strategy, is a key player in the New Directions story. In the next section his role in the programme will emerge.

In 1993 the University had over 3,000 full time staff. Some 800 were academic staff, 500 administrators and 1,200 secretarial and clerical. The term administrative staff is in some ways misleading, for as well as significant numbers of staff employed in typical educational administrative tasks there are other professionals. These include accounting, auditing and personnel professionals, computing experts, surveyors, editors, designers, print production and publishing specialists. The roles and responsibilities amongst secretarial and clerical staff also vary considerably. There are senior secretaries and chief clerks who are responsible for the management of significant numbers of staff and the organisation of complex workloads and schedules. In many other organisations they would be classified as managers. The University also employs a number of technical staff who are highly skilled in their different fields. There are also several hundred skilled and unskilled manual workers including warehouse packers, gardeners, electricians, plumbers, postmen and porters.

The structure of the University is such that participation by the vast majority of staff in the strategic decision making process is very limited, if at all. Yet all these different staff working in their different areas in different cultures are the people who by their working endeavours create the Open University and would create its future.

7.6. The New Directions Programme 1993 - 1996 Events and Activities

Each of the sections 8.3.1 to 8.3.4 commences with a diary of events which lists the workshops, briefings and activities for the year concerned. This shows at a glance the variety, type and number of New Directions activities in a given year.

7.6.1 New Directions 1993

Phase I	Diary of Events
19th & 20th April	New Directions Workshop - 'How to achieve Quality Growth for the OU of the Future'(1)
21st & 22nd April	New Directions Workshop (2)
29th & 30th April	New Directions Workshop (3)
11th & 12th May	New Directions Workshop (4)
20th & 21st May	New Directions Workshop (5)
5th & 6th July	New Directions Workshop (6)
Phase II	
16th & 17th Nov.	New Directions Workshop (7)
9th & 10th Dec.	New Directions Workshop (8)

How it all began

In January 1993 Geoff Peters, PVC, Strategy asked the Personnel Division for its support in setting up a series of workshops to provide an opportunity for staff

consultation over the new *Plans for Change*. As Head of Training and Development I was thus involved in the programme from the very beginning. It was decided to set up six two day workshops as soon as possible and to invite some 30 staff to each one. Staff from all categories and locations would be invited to attend and their names would be selected from the OU phone book. In this way it was hoped to have a representative 'diagonal slice' of staff at each workshop. Invitations were sent out and Heads of Units asked to allow their staff to attend the workshops and also to brief them on the University's strategic plans before they attended and further more, to follow up with a debriefing and support for actions afterwards.

At a briefing meeting for the workshops on 18th March the PVC, Strategy described how the University needed to double its student numbers over the next 10 years and how at the workshops we needed to explore both the 'real blocks' and the 'real opportunities' to change. He described two major outputs that he was hoping for from the workshops.

1. 'People wanting to change, questioning the status quo'
2. 'Insight into attitudes and issues'

Further, he was looking for feedback from the workshops which would form the basis of a short paper which he would use to brief his own team, his task groups, and Heads of Units.

The workshops were 'to give staff an understanding of the scope of the change needed, and for staff to tell the University about any problems which our plans pose for them and for their colleagues' (Geoff Peters quoted in *Open House* April 1994).

<u>The first six workshops</u>

The design of the first two or three workshops varied but by the 4th and 5th workshop a pattern of process had emerged which was to become the model for later workshops. This is described by Parsons and Russell (1995) as follows:

> 'initial plenary introduced by the PVC (Strategy)
>
> work in small groups on visioning the OU of the future,
>
> plenary discussion to share these visions and draw out key themes
>
> work in small groups to develop an action plan for each key themes
>
> final plenary to present action plans to the PVC'.

By early summer the workshops were beginning to generate interest across the University. Staff began to ask to come along instead of waiting to be invited (Parsons and Russell 1995).

Communications Flow and Feedback

All the ideas and suggestions recorded on flip charts were typed up and copies sent to the PVC, Strategy and all the delegates. These records proved to be a valuable resource and were later used to inform the next stage of the programme.

In June a memo went out to all attendees of the Workshops from the PVC, Strategy enclosing a copy of leaflet version of *Plans for Change*. This memo makes some important observations on the programme to date. Geoff Peters writes:

> 'I have received a considerable amount of favourable comment,
> as well as a series of requests from people who were not invited
> this time and would like to be involved in the future. I am sure this
> is due to the care with which you have reported back on the

activity.'

Ideas and suggestions from the workshops were fed into papers discussed by the Vice Chancellor's Office Team and into a paper: *Planning for Quality Growth* which went to Strategic Planning & Resources Committee at the end of June. Parsons and Russell (1995) state that:

> 'The OU's senior managers met to discuss the New Directions programme and heard reports of how the Operations Division and other areas of the University were bringing New Directions participants together to consider changes in their own areas'.

In August the Director of Personnel wrote the draft of a paper: *Strategic Plan and Plans for Change - Managing the Transition - the 'People Dimension'* which contained substantial references to the New Directions workshops. It suggested a number of ways in which to 'maintain the momentum' including the establishment of an annual one day conference for all New Directions participants. This would provide an opportunity for participants to update themselves, review the outcomes of the workshops, network, 'celebrate changes' and 'communicate with and be communicated to by, the Vice Chancellor, VCOM and the "Transition Team".' This idea on fell on fertile ground and was picked up again in the autumn when a letter went out to all New Directions workshops participants asking for volunteers to form a committee to organise a New Directions conference for the coming year.

Autumn 1993

Two workshops in the autumn followed the same pattern as the first five, but began to concentrate on specific aspects of New Directions, such as 'short response times'. There was was also an effort to increase attendance by academic staff who had so far been under-represented, and to include staff who were also students taking our courses, in order to introduce a 'student' perspective.

By the end of 1993 there had been 8 workshops involving approximately 164 staff and reports / features in 3 editions of *Open House*.

7.6.2. New Directions 1994

1994 was to see a significant expansion of the programme and several important developments in the overall change process.

Diary of events

Phase III

6th January	'Electronic Strand' Workshop
24th January	'Electronic Strand' Workshop
23rd February	'Joining the University Workshop'
29th March	'Choosing the Open University'
15th April	'Improving Internal Communications' Workshop
18th April	'Improving Internal Communications' Workshop
18th May	NEW DIRECTIONS CONFERENCE
28th June	'Achieving Change' Workshop
August	'New Directions Cartoon Competition' announced.
21st October	Lunchtime Briefing - Geoff Peters, PVC, Strategy. 'New Directions and Plans for Change.
2nd November	'The Regional Centre of 2001' - Birmingham Region
10th November	Lunchtime Briefing, Philip Marsh, Director of Personnel.
15th November	'The OU Going Global Workshop', - Office for International Collaboration.
9th December	'The Regional Centre of 2001' - London Regional Office
12th December	Lunchtime Briefing, Ted Atkinson, Director of Marketing,
December	Calendar Cartoon Competition prize winners receive prizes from Geoff Peters, PVC, Strategy.

Total attendance at the programme in 1994 was approximately 533. It is difficult to precisely quantify the figures as some people attended more than one workshop and no formal attendance records were kept of the Lunchtime Briefings. There were reports / features on New Directions in 5 editions of *Open House* in 1994.

Spring 1994

After discussions between the Training and Development Team and the PVC, Strategy it was decided to continue the programme of workshops by offering workshops based on key themes which had emerged from the workshops in 1993. The event of major significance during 1994 was the New Directions Conference on 18th May. The Conference, its influence and impact on the University, and the work of the Conference planning team are a major focus of the case study. A description of the Conference and the team are given in section 8.7.

Autumn 1994

In the autumn a simple leaflet describing 'New Directions' what it is all about, its principles and practice was distributed to all staff. Further leaflets in the series were to follow. Following the Conference a group of volunteers had formed the New Directions Staff Survey Team and during the summer and early autumn worked to deliver a university staff survey. The team, and the way it worked to carry out its task is an important part of the case study and a description of how the team came about and its achievements is described separately in Section 8.8.

Lunchtime briefings & Inter-Regional Workshops.

The team that had organised the Conference continued to work together to follow up on some of the ideas and themes that had emerged from the

Conference. They decided that more staff could become involved in New Directions if events took place in the lunch hour. Thus with the support of the PVC, Strategy and Development and the Training & Development Section a series of lunchtime briefings took place in the autumn. Inter-regional workshops were held in Birmingham and London on exploring how regional activities would look in ten years time. Staff from four or five regions attended each of these and members of the Conference planning team assisted as facilitators.

Cartoon competition and calendar

One of the ideas carried out by the Conference Planning Team was the organisation of a cartoon competition for staff on the theme of 'the OU of the future'. The winning cartoons were used to produce a New Directions Cartoon Calendar for 1995. A thousand calendars were printed and made available to all staff.

> 'So 1995 began with a significant number of the University's staff pinning up "new imagery" on their walls. Here was a message that the future would be different ... and might even be fun' (Parsons and Russell 1995).

7.6.3. New Directions 1995

Diary of events

20th January	'The Regional Centre of 2001' - Newcastle Regional Office
7th February	'OU Going Global' Workshop - Office for International Collaboration.
14th February	'The OU in the 21st Century'
18th May	Lunchtime Briefing, Geoff Peters, PVC, Strategy. The "New" Plans for Change'

10th June	Workshop for OU students in R04 - Birmingham
16th June	Making Better Mistakes Workshop
21st June	Lunchtime Briefing, Geoff Peters, PVC, Strategy. The "New" Plans for Change'
11th July	Communications Workshops for AA (Students)
12th July	Communications Workshops for AA (Students)
July	New Directions 1996 Cartoon Calendar Competition announced
21st September	Lunchtime Briefing, Tim O'Shea, PVC, Quality Assurance and Research. 'Academic Staff Renewal'
25th September	Visualization Workshop
18th October	Communications Workshops for AA (Students)
14th November	Making Better Mistakes Workshop
December	New Directions 1996 Cartoon Calendar Competition winners receive prizes from Geoff Peters, PVC, Strategy.

The number of attendees in the programme in 1995 was approximately 387. In 1995 there were reports / features on New Directions in 4 editions of *Open House* and one edition of *Sesame* the students' newspaper.

Early in the year several members from the Conference Planning Team and the Staff Survey Team got together and formed the New Directions Action Group. On an 'away day' in January the new group brainstormed a number of ideas which were picked up and taken forward during the year. These included a 'Mistakes' workshop, a Visualization workshop, a workshop for OU students and communications workshops.

7.6.4. New Directions 1996

Diary of events

14th February	Communications Workshop AA (Students)
8th May	Communications Workshop Centre for Modern Languages
17th July	Communications Workshop, Cambridge Office
6th September	New Directions Conference and Fair (80 participants)
28th November	Making Better Mistakes Workshop

In 1996 approximately 170 staff participated in New Directions events and there were items / features on New Directions in 3 editions of *Open House*.

The Conference in 1996 was not so ambitious as the 1994 Conference offering only 8 workshops in two streams. It did however include a 'fair' element that comprised an OU horoscope, a picture gallery of New Directions art work, a graffiti wall and the planting of a symbolic new mulberry tree by the Vice Chancellor.

Members of the New Directions Action Group that had organised the Conference were now finding it more difficult to create the space needed to support the programme and in January 1997 the Group decided it would take a break and review the situation at a later date to be decided.

7.7. The 1994 New Directions Conference and Conference Team

In September 1993 a letter went out from the PVC, Strategy to all those staff who had attended a New Directions workshop asking for volunteers to form a committee to organise a conference for April 1994. Some 23 staff responded. It was decided that 23 was too many to form an effective group so 11 staff were chosen from the list of volunteers as a representative cross section. In the event 8 staff regularly attended. There were: 2 regional academics, 2 secretaries, a senior editor, a warehousing manager, an administrative assistant and a chief

clerk.

The first meeting of the group was on March 7th. The memo inviting all members of the team to attend described the purpose of the group thus:

> 'The purpose of this group is to make sure the conference:
> happens
> represents all staff
> draws together ideas and experiences to date
> initiates further actions on 'quality growth'

Further the memo stated that:

> 'We have a few ideas to kick off with, and some administrative support. The rest is up to us.'

A provisional date for the Conference had been fixed: 18th May 1994. Thus the Conference Planning Team had just over two calendar months to organise everything. The Conference was organised with a total of 5 meetings between which there had been an e-mail flow of ideas, discussion and decision making. The Conference had 100 delegates and offered 20 workshops with a mix of internal and external speakers and an exhibition. The programme for the day is shown in Figure7.6 overleaf. Parsons and Russell (1995) describe how:

> 'On the day, the University's Training Centre was filled to capacity with over 100 delegates (and there was a waiting list). Participants included secretaries, gardeners, academics, administrators, managers and technicians. The day culminated in

Figure 7.6. The 1994 New Directions Confernce Programme

NEW DIRECTIONS

CONFERENCE

May 18th 1994

Programme Details

9.30	Introduction from Geoff Peters, Pro-Vice Chancellor (Strategy)
10.00	Parallel Workshops Theme One - Achievement
11.00	BREAK
11.30	Parallel Workshops Theme Two - Experiencing Change
12.30	LUNCH
1.30	Parallel Workshops Theme Three - The Future
2.30	BREAK
3.00	Action Planning
4.30	Presentation of Action Plans to the Top Team
5.35	**Conference Close**
6.00	Optional Evening Session (Refreshments will be available from 5.45pm)
7.00 (approx)	Close

NB The conference will open at the Community Hall, London Road, Stony Stratford. Workshops will be held at the Training Centre, Cofferidge Close and at the Community Hall.

the presentation of action plans to the Vice Chancellor, Pro-Vice Chancellors and other members of the OU's senior management team.'

Further:

'Four issues emerged as priorities in the actions plans:

1 equality of staff working conditions throughout the OU

2 letting everyone know about strategic developments

3 marketing strategy

4 use of information technology.

Equally significant was the reaffirmation of the principles and values underlying, the Open University. There was also considerable enthusiasm for getting on with local action.'

A formal report of the Conference was written up and circulated to all delegates and senior staff. The proceedings were also videoed and made freely available. In the autumn a further leaflet in the New Directions series was published detailing the aims the University's Staff Action Plans.

The Conference Planning Team continued to meet and 'reconstituted itself as a "ginger group" to facilitate, and if necessary carry out the follow-up work' (Parsons and Russell 1995).

7.8. The University Staff Survey and the New Directions Staff Survey Team

At a meeting of the University's Investors in People Communications Sub Group on 20th May two days after the Conference it was decided to involve New

Directions people in organising a staff survey for the University. Parsons and Russell (1995) note that for almost two years the Staff Policy Committee of the University had talked of the need for a survey of staff, to find out what the various staff groups felt about working in the University.

On 27th May 1994 I was briefed by the PVC, Strategy and asked to put together a team of volunteers which would work with the Director of Public Relations, Les Holloway, to deliver a staff survey for the autumn. The volunteers would be drawn from those staff who had attended the New Directions Conference.

On 31st May a note went out to all the Conference delegates asking for their assistance. 10 members of staff volunteered and in the event 8 were able to make the first and subsequent meetings. The Staff Survey Team consisted of one senior academic, 2 senior secretaries, one editor, one administrator from the Planning Office, a senior O & M officer from Management Service Division, a course manager and the Grounds Superintendent. I too was a member of the team as was the Director of Public Relations. Secretarial and clerical support was the Investors in People Project Team and my secretary. An email went out from my office to the volunteers inviting them to the first meeting on 13th June and stating that :

> 'The group will act as a focus to identify the issues and explore and establish the questions to be asked. This process will be managed by Public Relations with support from Investors in People Unit... The aims of the first meeting are to introduce ourselves to each other, to be briefed on the project by Les Holloway and to get moving!'

At the first meeting a list of nine topics covering the next stages of drawing up the survey was agreed and this would form the basis for the next meeting on

20th June. Progress was as follows:

20th June a Progress Report to the IIP Communications Group was drafted and a revised tender document prepared.

29th June Survey Team decided that an invitation to tender would go out to 5 companies.

July 22nd the Survey Team met four companies who were tendering for the project to brief them.

The tenders were submitted by 28th July.

29th July the Survey Team met to decide which company to recommend to carry out the survey. A revised timetable was drafted.

14th Sept the Survey Team met for a debrief on the qualitative stage of the survey.

27th Sept. the Survey Team discussed the draft questionnaire.

10th Oct. briefing on the results of the Pilot Questionnaire and discussion of next steps.

The questionnaire went out to all full time staff of the University on 31st October 1994. The closing date for return was 25th November. By that date 2,280 forms had been returned out of a payroll of 3,516 which represented a return of 65%.

9th Dec. Team met to discuss follow -up to the findings of the survey including presentations to the staff and supportive action in relation to the findings.

23rd Jan. the first report on the Staff Survey was presented to the Vice Chancellor's senior team and the Staff Survey Team members.

A series of presentations to different representative groups was arranged and an open presentation to all staff in the University Lecture Theatre. All staff received a summary report of the findings and all Department Heads were asked to discuss these with their staff and devise follow-up action plans. The

Survey Team had completed its task and 'after a celebratory lunch was disbanded' (Russell and Parsons 1996).

7.9. Conclusion

Attendance figures for the New Directions programme over the period 1993 to 1996 are as follows:

1993	164
1994	533
1995	387
1996	170
TOTAL	1254

less 45 student attendees = 1,209 TOTAL STAFF ATTENDEES

The full time staff at the University during this period was in the region of (1993 = 3,000; 1995 =3,300; 1996 = 3,702) 3,300. If the figure of 1,209 equated with the number of staff participating then it would indicate that 36.6% of the full time staff had participated in the New Directions programme. But the figure records attendance and not individuals and is, therefore, artificially high, for a number of staff attended more than one event. For example, people were invited to the Conference in 1994 who had already attended a workshop.

Figures from a training survey in February 1995 show that an average of 13.6% (449) of all staff had attended more than one event. If we then deduct 449 from the total (1209) we have a figure of 760 staff participating in the programme. This equals 23% of the total staff.

To arrive at an accurate figure for the number of individual staff who participated

in the programme is impossible. But we know that it was about 23% of the full time staff. It is important to bear this in mind when considering the impact the programme made on the University and the extent of its influence. The records show that academic staff were in a minority.

This chapter sought to describe the New Directions programme, its birth and development, and the range of activities that it undertook or was associated with, within its organisational context The next chapter considers New Directions as an organisational change process at the Open University and, in particular, examines the influence and impact that it had upon some individuals within the institution.

CHAPTER 8

NEW DIRECTIONS AND CHANGING THE OPEN UNIVERSITY

8.1. Introduction

The facts of the New Directions story are described in Chapter 7 which briefly discusses the financial, environmental and strategic planning context out of which the programme arose and then the events and activities that took place during the period under study, 1993 - 1996. But what kind of programme was New Directions and how effective was it in bringing about organisational change? Did understandings of the new sciences in any way influence the programme and if so how?

This chapter draws on the conclusions derived from the data analysis process and considers New Directions as an organisational change process. Chapter 9 also draws on the data analysis but discusses the New Directions programme from a new sciences perspective and considers whether such an approach suggests new ways of achieving organisational change and transformation.

In this chapter Section 8.2. discusses New Directions its characteristics, its influence, the responses it evoked within the Open University and its perceived impact. Because the 1994 New Directions Conference was such a major event in the programme and in many ways both mirrored and magnified its themes and characteristics it is discussed in a separate section, Section 8.3. The 1994 Conference Team and the Staff Survey Team are such significant features of the programme that these are also reviewed in a separate section, Section 8.4. This then leads to considerations of the implications this has for organisational change initiatives in complex, bureaucratic organisations in Section 8.5. Relevant literature on organisational change was reviewed in Chapter 4.

New Directions and its influence on the Open University as described in this thesis is an inside story. The data for Chapters 8 and 9 is taken from the people who work at the University and are thus inside the organisation. Thus the story that unfolds is told chiefly from an inside perspective, further it focusses particularly on the perspective of those staff who were actively involved in the process. Thus it is possible to learn a great deal about key activist or volunteer groups and the role they may play in a change intervention. Outside observation and another perspective is provided by the Institute for Employment Studies study.

8.2. The New Directions Programme as an Organisational Change Process

Evidence for this section is provided by primary data (interviews, the scaled questionnaire) and secondary data (internal records and documents, *Open House* and the Institute for Employment Studies study). There is a large measure of agreement between all these sources. Where there is any difference or challenge then it is discussed and explanations sought.

The New Directions programme began as a series of consultative workshops designed to enlist staff support for *Plans for Change*. The PVC, Strategy states (*Open House*, April 1993):

> 'The purpose of the workshops is two-fold to give staff an understanding of the scope of the change needed, and for staff to tell the University about any problems which our plans pose for them and their colleagues'.

As described in Chapter 7, *Plans for Change* made it clear that the 'new

directions' or changes in working practices needed to achieve the University's new strategic vision would be best achieved through a process of raising awareness, staff development and management action at every level. Most importantly, all staff were to be given the opportunity to be involved. Thus looking back New Directions could be seen as a consultative device that sought to enlist active staff support for a top down approach to strategic change. The programme was one part of a university wide strategic change process which included new unit planning processes linked to *Plans for Change* with accompanying plans for management action. The first workshops and the staff development programme sought to enable staff to cope with the expected changes needed and to deliver them too. In this way the University recognised and sought to handle the human dimension of change.

Although *Plans for Change* had been conceived via traditional planning processes within it lay the seeds of more innovative approaches to strategic change, namely the involvement of all its staff and the call for management action. It was how these ideas became reality that was to prove highly significant.

The New Directions programme in its early days, in as much as it reflects any theory or model of change, was a mix of partly 'emergent' and partly 'deliberate' approaches to strategy (Mintzberg and Waters 1989). The process of strategy making was controlled by the top management of the University led by the Pro Vice Chancellor, Strategy but with the conditions created for new strategies to emerge via a responsive and consultative approach.

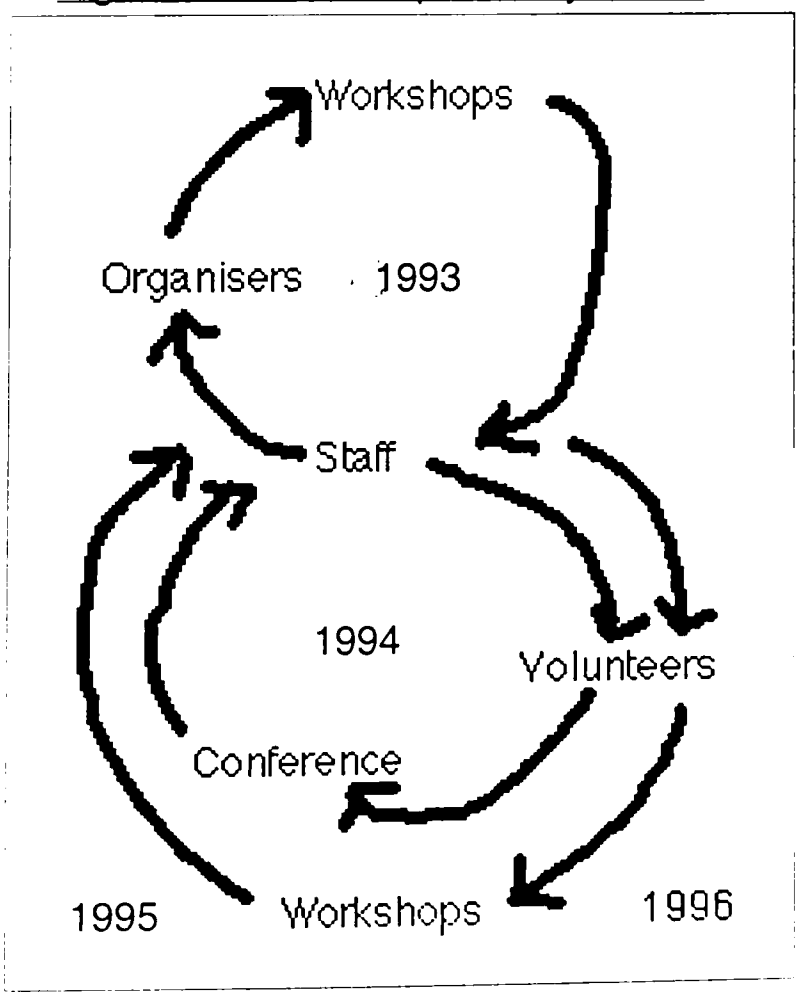
8.2.1. The Response Dynamic

The first series of workshops aimed at involving as many staff from as many different grades, levels and locations as possible. The PVC, Strategy attended

all the workshops in order to explain the thinking behind *Plans for Change* and then to listen to the feedback from the delegates. (This accords with an unofficial OU tradition whereby many staff felt free to articulate their views on the decisions of senior staff.) The ideas and insights offered by those staff at the workshops were then fed back into the strategic processes of the University by the PVC, Strategy. Such was the response from staff and the value of the ideas generated that the PVC, Strategy decided to hold more workshops in the autumn of 1993.

Thus a series of workshops planned for a six months period was extended to a year and the pattern of response for the whole programme unexpectedly created. The staff responded to the workshops and the workshop organisers, (the PVC, Strategy, and his office team) responded to the staff's response. This was the early dynamic of the programme and it continued through much of the lifespan of New Directions. Figure 8.1. illustrates this. It also shows how from

Figure 8.1. The Response Dynamic.



1994, after the Conference, volunteers or activists inherited the responsive

mantle from the original organisers.

Secondary data and the response to the scaled questionnaire support the notion of a programme which evolved by responding to the issues raised. In so doing it created its own dynamic which was energised by various feedback loops around the University. This accords with Stacey's (1996) 9 point theory of organisation which describes organisations as webs of non linear feedback loops. Ideas and challenges flowed from the workshops to other staff and to senior management via the PVC, Strategy. These are discussed in Section 8.2.7. These were then fed back via a number of channels including further workshops and *Open House* which played a key role in informing staff and also feeding back comments and views via its pages.

Further, by responding to the response of those it sought to involve the creators of the programme learnt how to continue to involve people and they did this by responding spontaneously and not by preplanning in any large measure. It was in this sense also that the initial programme can be characterised as a mixture of partly 'emergent' and partly 'deliberate' approaches. The programme set out, in other words, it planned, to respond to the workshops and that was 'deliberate', but the way that the response developed and the outcomes of the response were essentially 'emergent' (Mintzberg and Walters 1989) outcomes.

8.2.2. A Change Process

The response to the scaled questionnaire showed that most (82%) considered the programme to be a 'movement' for change. In discussing New Directions with those interviewed it became clear that a majority (10 out of 19) believed that the programme's prime purpose was to change the way the University managed itself and to focus on the future. Key to this was a process of involvement which encouraged staff regardless of job or grade to become

involved in creating the changes needed for the future of the University. As the matrix in Appendix 1. Example 2., shows, one manager described the programme thus:

> 'New Directions: a process which addressed organisational change using effective staff involvement at all levels.'

Another described the programme as:

> 'An attempt by the University to involve all its staff in the present and the future in a global sense.'

Five interviewees described New Directions as a process for change by using metaphor. (See Appendix 1. Example 2.) They spoke of 'a catalyst', 'a new broom', 'an ideal tool', a 'short cut mechanism', and 'a vehicle.' Three of these were very mechanical, machine type images. One is a scientific image and the 'broom' is a folk or proverbial image. There is nothing soft or sensory about these images. They are all practical, mechanical or scientific images. Handy (1990) reminds us that language often indicates attitudes towards organisations. These images with their mechanistic overtones, are rooted in traditional notions of change and reflect a way of thinking that underpins the bureaucratic approach to organisations (Morgan 1986). Thus they also remind us of the context in which the programme took place - a University that has many features of the traditional, mechanistic organisation.

Others saw the programme as trying to bring about change in more subtle ways. One senior manager spoke of the programme as:

> 'A softening up process towards change acceptance'.

This more subtle approach was echoed by an academic who thought that the programme was:

> 'A subversive influence on change; one of the many needed to ensure the OU adapts to changing circumstances.'

All those interviewed were either positive or neutral in their views on the essential purpose of the programme with the exception of one respondent who described the process as:

> 'A well-meaning but misguided attempt to involve different staff categories in the decision-making and "ownership" of the decision-making process which ultimately caused dissatisfaction'.

8.2.3. A 'people's programme'

One of the interview respondents highlighted the involvement of University management as a feature of the programme. This was an academic interviewed in 1996 who looking back commented that the programme was:

> 'Management's attempt to promote grass roots ownership and participation in change'.

An opportunity for grass roots involvement was provided by the first workshops and more especially by the setting up of the 1994 Conference Team. What cannot have been foreseen was that the involvement of all staff, or the 'grass roots', would led to a change in the ownership of the programme. The 1994 Conference Team organised the Conference and having succeeded went on to respond themselves to the issues and ideas raised by the staff and to arrange

for more events as described in Chapter 7 (eg. Lunchtime Briefings, regional workshops and the Calendar Cartoon Competition). Thus the PVC, Strategy and his office team came to work in partnership with the participants themselves. New Directions had become, as one manager interviewed described it:

> 'A dynamic programme of enthusiasts seeking creatively to change the OU for the better.'

Support for this view comes from the results of the scaled questionnaire with most agreeing that New Directions was a 'people's' programme. This may be explained by some of the comments of those interviewed who spoke of how:

* It became 'became owned by the people'.
* How participants shaped or helped shape each event according to their own needs and interests. (This made it very different to other organisational / staff development activities at the University.)
* It included a wide range of staff from all categories.
* It had an involving approach.
* It responded to the needs of the staff.

8.2.4. The New Directions way of doing things

How did the programme seek to involve all the staff? In other words, what kind of style or approach and techniques did the programme use that would encourage all grades and categories of staff to become involved? The staff at the University covered a wide spectrum of skills and abilities and as an institution it has many hierarchies. How would a programme appeal to a junior clerk, a warehouse packer, an editor, a computer technician and a social sciences lecturer, for example? Also, most importantly how would it not only appeal but also encourage active participation in the change process?

The New Directions way of doing things was described by those interviewed as: informal, open, involving, inclusive and different. Thus aspects of the programme's style actively reflected the University's own key principles of openness and open access to all and the OU's espoused values gave a supportive cultural context to the programme. Although in many areas of the University the values being practised were at odds with the espoused values. Tensions were created, many managers did not support the programme and in some instances refused to let their staff attend. The involving nature of the programme was also recognised by the results of the scaled questionnaire (89% agreement).

Skilled facilitators were used in all the workshops and the Institute for Employment Studies study notes that the programme sought to facilitate equality of involvement so that all the participants whatever their status felt everyone was equally valued.

Creativity

Records of the workshops and other activities and show how the New Directions approach encouraged the use of creative ways of presenting ideas and behaving at workshops in an attempt to stimulate new thinking. Group presentations not only consisted of the traditional flip chart lists but also drawings and on occasions a poem, street theatre or a skit on the News at 10. In an article in *Open House* (March 1995) Carol Russell, 'chair' of the 1994 Conference Team describes how she had been inspired to write a description of the OU of the future by a 'theatrical presentation' on the OU in the year 2005 made by 'a particularly creative bunch of people' on a regional workshop. She described how the use of drawing was also encouraged as one way of stimulating fresh ideas but also because the 'richness of an idea may get lost when it's put into words'.

Figure 8.2. overleaf shows a flip chart presentation from this workshop: This rich vision of the regional centre of the future shows considerable sensitivity to the learning environment and emphasises the importance of meeting the emotional and physical needs of all its students. The concept is a holistic one that integrates learning with leisure and the hard wired world of new technologies (satellite disk and language lab) with the soft, sensory world of flowing water, trees and aromatherapy. It is a holistic vision that embraces all the human community, families as well as individuals. It is very far removed from the regional centre of today which is situated in an urban office block and focuses on the individual learner.

As Handy (1990) points out:

> 'New imagery, signalled by new words, is as important as new theory; indeed new theory without new imagery can go unnoticed.'

This belief inspired a Visualisation workshop organised by the Action Group in September 1995.

Humour also played a key role in stimulating discussion and raising awareness of key issues. For example, staff were asked to produce limericks for a Limerick Wall as part of the 1996 Conference and Fair. One manager interviewed described New Directions as 'sometimes a bit zany', another commented that it had 'a humorous style reflected in the calendars'. Another interviewee, a senior manager described the 1995 calendar as 'brilliant' and ideal for suggesting the way to be approaching change issues. Figure 8.3. shows a cartoon from the 1995 calendar and provides a typical example of how change issues were

Figure 8.2. The Newcastle Learning and Leisure Centre

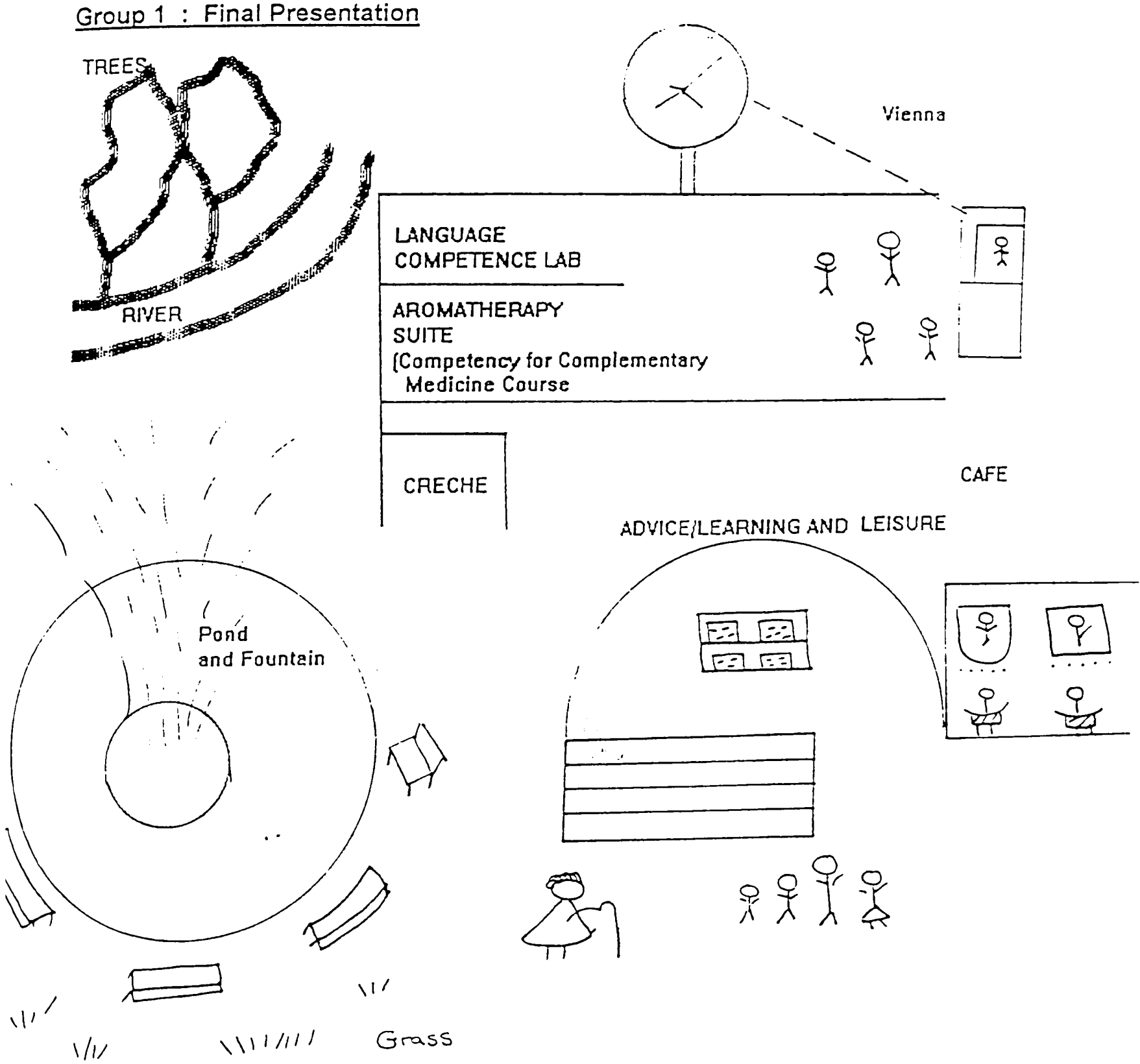
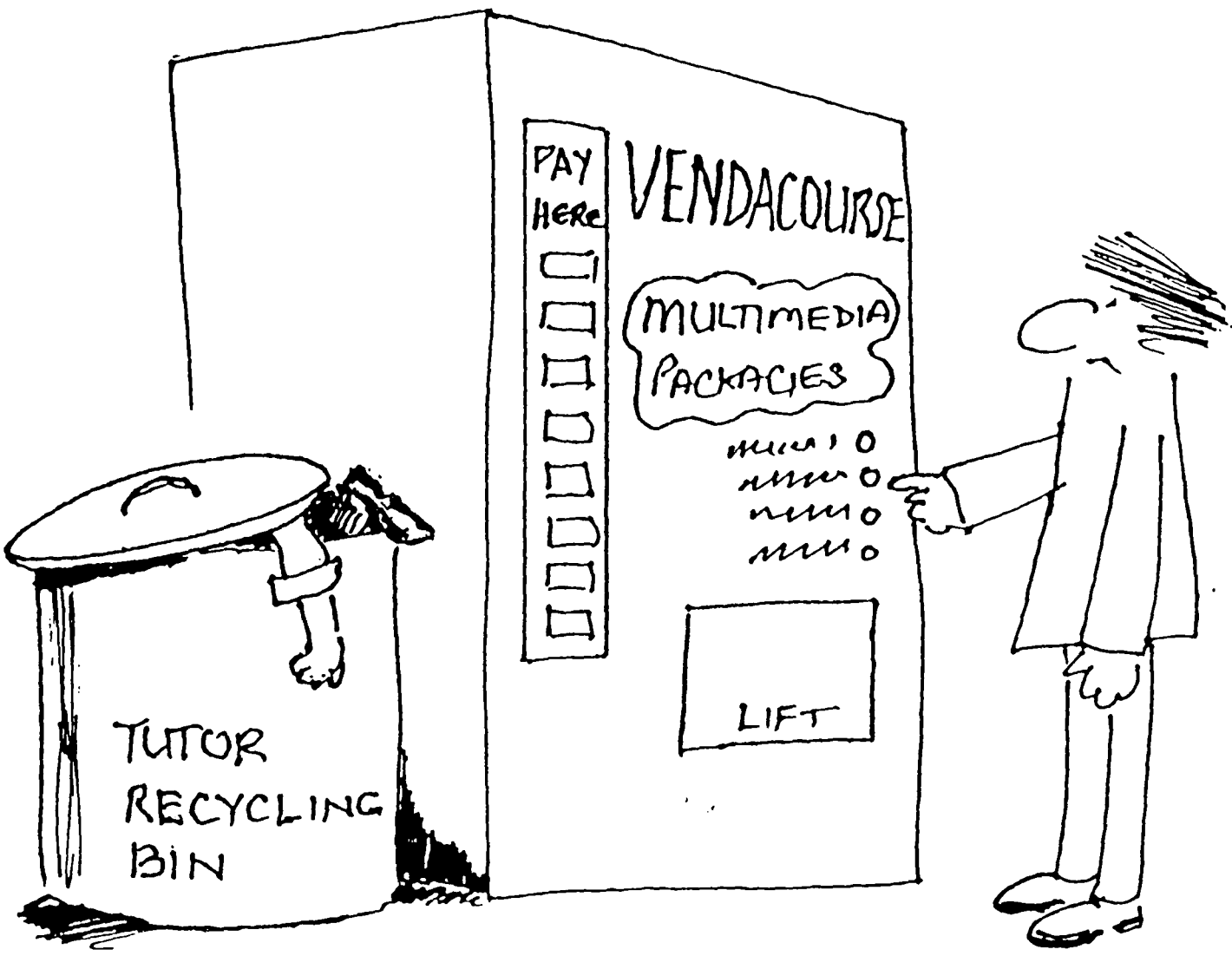


Figure 8.3. New Directions Calendar.



explored in a novel and insightful way.

Figure 8.3. extrapolates the current development of multimedia technologies to a future conclusion. In this future world learning is as accessible as a can of coke. But there is a down side to this vision. Associate Lecturers will no longer be needed and will be discarded for recycling. This is a telling example of how humour can be used to envision the future showing a radically changed world and a range of implications, including the human costs. It has more immediacy and impact than any strategy document.

One senior clerk interviewed observed that New Directions used 'a sense of humour to get over the serious issues'. Everyone could appreciate the joke and get the message. The IES study also notes that the workshops took risks with the use of unusual techniques and fun activities to explore serious high level issues. The study observes that:

> 'As the programme progresses, it emerged that the way to unlock people's creativity, to get them to speak openly and equally at all levels of the organisation was through the use of unusual techniques, an informal atmosphere and creative facilitation. Individuals were encouraged to work with people they do not know, to have fun, to loosen up, to explore the use of metaphors.'

As Morgan (1993) points out it is very difficult for people to shake off old ways of thinking about their organisation and their role in it unless they are encouraged to use their imaginations and 'ad hoc imagery' to discover new interpretations and fresh ways of thinking.

Experimentation

The IES study reports that in the programme experimentation was key. This is

crucial for innovation and a necessary activity in challenging the status quo in a learning organisation (Leonard-Barton 1994). A report in *Open House* in May 1995 describes proposals for 'a revolutionary-for-the-OU workshop' which will help staff 'to take more risks, make more mistakes, but learn from them'. Mistakes and experience of mistakes are elemental features of development and learning (Dale 1994). If a learning climate is to be established then experimentation is encouraged and there is recognition that people learn from experience and from mistakes (Pedler et al 1991). The workshop called 'Making Better Mistakes - Banishing the Blame Culture from the OU' tackled 'some controversial and emotive subjects'. The workshops had a broad appeal making it possible for any member of staff regardless of status to meaningfully participate. The following comments from a range of participants illustrate this:

> 'I came away feeling that my ideas and input had been harvested. I would certainly recommend anyone who needs to re-energise their "UMPH" to attend the next one.' Training Assistant

> 'I'm so relieved. I'll never feel the same...When I go back I'm going to say "go for it girls"..' Assembly Operator

> 'It really was amazing how all these different types of people just get together and start working... for me it was the OU style from its beginnings, but looking at the future. Wonderful.' Senior Lecturer

The Mistakes Workshops show the way the programme was prepared to take risky steps to encourage new attitudes and behaviours, and a positive attitude to risk is essential if an organisation is to be experimental and innovative (Leonard-Barton 1994). Many of the New Directions workshops created a 'safe' environment for people to try out risky ideas that offered a challenge to the existing order. Further, this order may have existed as much within their own

minds as within the culture and processes of the University. Such activities could serve to shake up people's mind sets and lead to the creativity and innovative thinking found at the edge of chaos.

8.2.5. An Action focussed Process

The evidence from interviews and secondary data suggest that the New Directions approach sought to energise people not only to think about change but also to take action and make things happen. Interviewees described it as 'action focussed' with 'a lot of synergy' and a 'give it a go' attitude. As a change process the programme sought to stimulate and encourage staff to introduce changes themselves. Overall the response to the scaled questionnaires supports this view although several activists and participants (non activists) were not sure that it encouraged staff to make the changes themselves.

In an article in *Open House* in July 1995 the PVC, Strategy wrote of the importance of every individual taking action and then stated:

> 'New Directions is also about action. The activities are designed by staff volunteers and emphasise practical results The over-used phrase "think globally act locally" really does fit the New Directions activities. Staff sort out where the University needs to go and then they take action to help get there.'

These comments acknowledge the role of the activists or volunteers as creators of New Directions activities.

8.2.6. The Staff Response to the Workshops

The secondary data provides evidence that the workshops in the New

Directions programme were supported with enthusiasm by many staff who attended. This is illustrated by a letter sent to Geoff Peters, PVC,Strategy, from a member of regional staff in Scotland who had attended an early workshop in 1993. She writes:

> 'I felt that the informal atmosphere and the friendly welcome established a group environment which was totally unthreatening and which helped everyone to feel able to contribute freely. I came home refreshed, better informed and with the feeling that, however, lowly my position... I had been listened to. I was made to feel that I had something to contribute to the future of the OU.'

Further she writes:

> 'I thought that it was a most creative and imaginative idea to choose staff at random from all grades and areas within the OU..... I felt privileged to be asked to take part. It has increased my respect for the openness of the OU..... From someone who never wins a raffle I felt this time, at least, I had won one of the major prizes.'

The letter conveys some of the enthusiasm that the workshops engendered in some of the staff, especially the more junior staff who were unable to participate in the University's consultative and decision making processes.

Not all staff were so enthusiastic, however, and some were suspicious of the motives behind the workshops, with some thinking that it was just a public relations exercise. Others thought that it did not involve enough academics or regional staff to be truly representative. Further, not everyone saw advantages in bringing together a mixed group of staff. One senior member of regional staff

wrote:

> 'I cannot see that getting together a group of staff, most of whom do not sit on decision-making committees and none of whom are in positions of management, can genuinely influence the policy changes that need to come about. I feel it would have been more productive to convene groups of staff who share similar perspectives and concerns.'

The two letters quoted above reflect two entirely different facets of the OU in 1993. The latter coming from a senior member of regional staff is critical, and uncomplimentary. She can see no value in involving junior staff who do not have a formal role in the university's decision making processes in discussing strategic change. The more junior member of staff sees the workshops as a real chance to get involved and make a contribution.

These two letters illustrate how some staff saw the programme as an opportunity and others as a threat. Costello (1992) observed that in the administration areas of the University there was a strong bureaucratic sub culture which relied on a stable environment. It was a culture where tensions arose between those who wished to change things or do things differently and those who feared the consequences. The above correspondence provides evidence to suggest that these tensions were not confined to the administration alone but also affected the regions and the academic areas.

Further evidence of the response of staff who attended the workshops is provided in a feature in *Open House* in August 1993 which contains reports from three different groups of staff who had attended a workshop in July. It illustrates the many different ways in which groups responded to the workshops and the richness of this response. One group, which includes a senior

counsellor, focusses on reforms to the way the OU handled all its enquiries. This group decide that a review of the systems was needed including advertising, and also 'a serious look' at how new technology might help. They conclude that 'a change in culture' was needed to improve services to students and their 'message was greater coherence, to achieve a less piecemeal approach to problem-solving'.

The second group which consists of 'faculty, regional, administrative, publishing and personnel staff' explore a range of problems and 'woes' about working life at the University. They move on to address the problems and 'ideas flowed... with suggestions and importantly mechanisms to achieve change'. The data from this group contains some radical proposals including the abolition of some of the management layers, decentralising decision making and reducing the number of staff categories. It advocates an approach to change with 'more participating workshops to facilitate a sense of ownership of change and the need for small task groups to cut across existing structures.' They conclude:

> 'Creativity flowed, tempered by hard headed reality, and when I listened to the ideas from the other two groups I was left with a strong feeling that we can restructure and reorganise in as radical a way to meet the needs of the new century as the original plans for the University broke the mould of the then higher education establishment.'

The third group call for a communications 'cascade' and campaign so that all staff knew about *Plans for Change* and 'felt involved and empowered to contribute to its effective implementation'. They conclude by stating that success can only be ensured if staff are given both the resources and the training and development to help them carry out these tasks. This group was very focussed and structured in its response to the group tasks and gave clear

and explicit details of arguments and conclusions.

Each group report was written with a different flavour that reflects the different make up of each group. What did they have in common? They all approach their task with enthusiasm and they all produce clear recommendations. All three reports illustrate the way in which the staff at the workshops responded to the challenge of interpreting the University's strategic plans. All had ideas and practical visions as to how this could be achieved. All convey a sense of involvement and commitment. The quality of the response during the workshops illustrates the ability that lay within the staff of the University to think strategically and operationally, regardless of their institutional role.

8.2.7. The Influence of the Workshops

How much influence did the New Directions workshops have? Evidence from the secondary data in particular suggests that in its early years the programme did have an influence on some strategic discussions and some senior management responses.

One of the issues discussed at the workshops was the need to move 'from complexity to simplicity', or in other words, to simplify the University's over complicated and often long winded way of doing things. This was a key theme in the strategic action plan. *Open House* (June 1993) reports that one of the outcomes of the workshops was the simplification of *Plans for Change* , the University's strategic action plan. At the request of the Pro Vice Chancellor, Strategy, this lengthy 80 page document was 'distilled down' into 'just four A4 sides' and copies sent to all staff.

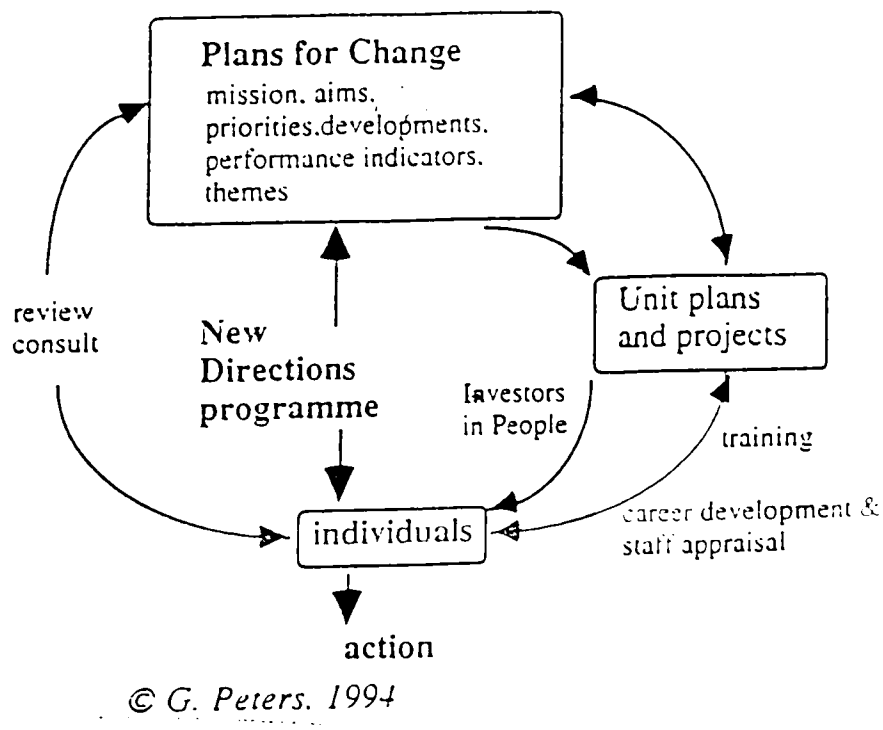
The ideas emerging from the workshops were such that the PVC, Strategy, commented in August 1993.

> 'The ideas were so prolific that they have generated papers which have been discussed twice by the Vice-Chancellor's weekly meeting, a summary paper went to SPRC[1] last month, and at the last meeting of the OU's senior managers we were able to talk through some of the issues and to hear a very interesting report of how Operations and some other units had been bringing their new directions people together to consider change in their area.'

The next series of workshops in early 1994 focussed on major strategic themes that had arisen from the first workshops. These workshops provided staff with a chance to directly discuss these themes with the senior manager responsible for their development. Thus a small number of staff from across the University were able to directly input to the strategy forming process.

Figure 8.4. below was created by Geoff Peters, PVC, Strategy in 1994 for an internal discussion paper (Parsons and Russell 1995). It shows New Directions' role in the larger change process that was taking place. Priorities and actions

Figure 8.4.



detailed in *Plans for Change* fed through the University's management structure

[1] Strategy, Policy & Resources Committee

and were formalised via the Unit Planning process. Managers were responsible for translating the University's strategic plans into local plans for action and activity. These plans were then fed back into the formal structures.

It shows how the programme linked to other strategic processes and how some individuals in the University were part of a feedback mechanism that embraced planning processes, strategic thinking and strategic action and staff development initiatives. The model shows how it was possible to recognise and to use the human 'webs of non linear feedback loops' (Stacey 1996) as part of a strategic change process. Further, Parsons and Russell (1995) comment on one way in which this feedback process was achieved:

> 'Without the New Directions programme, this could have been consistent with a traditional negative feedback loop approach - checking responses against targets and correcting to reduce differences. However, in bypassing organizational boundaries and formal procedures it set off some positive feedback processes.'

Further evidence of the role of the workshops, and thereby of the staff who attended, in inputting to future strategy is provided in an article written by the PVC, Strategy in *Open House* in July 1995. New Directions is described as 'an opportunity for all staff to help plan the University's future and clarify what action they can each take to make that strategy possible.' He then goes on to say:

> 'So for example, when earlier this year we were drafting an international strategy, we held open workshops on the "OU going global". The results were then fed straight into the preparation of a first draft and those who attended the workshop were able to comment knowledgeably on the thinking as it developed further'.

There is further evidence amongst the internal documents and records which shows that the ideas and suggestions from the workshops were circulated across the University. Several departments discussed the ideas from the workshops and looked at ways of taking them forward. A memo dated July 1995 from a head of department notes how the 'openness and breadth of dissemination to all staff about *Plans for Change* and New Directions issues' had been discussed by the departmental team and how the 'approach had been welcomed and valued by staff'.

Ideas from the workshops were also passed on to the Vice Chancellor and his senior team by the PVC, Strategy. A paper written by the PVC, Strategy in June 1993 entitled 'Planning for Quality Growth in the Context of New Directions' was used to form the basis of a one day workshop for the Vice Chancellor's senior team. The paper devoted almost 4 pages to ideas / suggestions from the workshops. Another paper 'Planning for Quality Growth' was presented to the University's Strategic Planning and Resources Committee in June 1993. This too acknowledged the input from the workshops and listed 11 issues or themes which had arisen from the workshops and the special investigating teams, also set up by the PVC, Strategy. An email dated 3rd January 1994 records that the Vice Chancellor was proposing to hold a New Directions workshop as part of the senior team programme.

Some 18 months after the first workshop had taken place an A4 leaflet *What is New Directions all about?* was drawn up and distributed to all staff. It contained information on its principles, its practice and the programme of events to date. It also looked ahead to the future of the programme and asked 'what next?' This deep pink leaflet with the New Directions logo on the front is a symbol of how far the New Directions programme had come. It had become for those involved, as the results of the scaled questionnaire confirmed, a

'movement' for change.

8.2.8. The Impact and Influence of New Directions on Participants

In terms of impact, the overall majority of those interviewed (16 out of 19 participants) felt that they had been influenced by their participation in New Directions and all found the influence a positive one. There were no negative aspects reported. Even those who thought the influence was subtle and hard to define were sure that it had been there.

Five of those interviewed attributed a change in their thinking to the fact that they had gained a much wider view of the OU and one referred to having gained 'a new perspective' on the University. Others thoughtfully observed that their thinking had been influenced 'in an imperceptible sort of way' or in 'lots of subtle ways'.

Some had readily identified the influence and the subsequent actions they had taken as a result. One respondent influenced by mixing 'with such a wide spectrum of people' had carried this through into her working day activities by ensuring that all her staff had plenty of opportunities to mix with staff from other areas and to visit regional offices. Another respondent believed that New Directions had enabled her to think about ideas from chaos and complexity and her readings on organisations and the success of using these ideas influenced her everyday work.

Almost half (9 out of 19) thought that their involvement in New Directions had directly influenced the way they did their job. Examples given were as follows:

* Experiences of New Directions workshops used to develop ideas for own workshops.
* Improved communications in own areas.

* Managerial style now more personal, more able to be himself.
* More tolerant and analytical of own mistakes and now focused more on the positive aspects of own work

Overall those interviewed who participated in the New Directions programme, whether as activists or participants, had their thinking, their feelings and often their behaviours influenced by the programme. Five interviewees reported an increase in confidence. This they identified as coming from the positive response they had received for their ideas and expressions of view. These respondents came from a cross section of staff categories. The IES data confirms that interviewees spoke of an increase in confidence and self esteem which they attributed to the personal impact of the programme.

8.2.9. Learning and Discovery

If learning is another word for change (Handy 1990), then there is much evidence to suggest that changes were taking place for those involved in the programme. The overwhelming majority of those interviewed (16 out of 18) believed that they had learnt or discovered something as a result of their participation in New Directions. All had viewed it in a positive light - there were no negative learning experiences.

The IES study found considerable evidence that both learning and a change in attitude took place as a result of an individual's participation in the programme. But it did also find some less than positive responses. One respondent in the study spoke negatively of the workshops and another thought he had never learned anything useful on any training courses. The study observes that those who did not feel positive about their learning experiences did so because they had had different expectations about the kind of learning that the event offered. Most thought learning was all about the acquisition of knowledge and skills.

Thus if the event did not offer knowledge or skills based outputs then the expectations of the learners were not met.

> 'I hoped I would learn but we only just scratched the surface. It (ND) tries to be very democratic and allow everyone their say, but some individuals get on their soapbox.'

The attitude of these respondents reflects traditional notions of learning whereby once the skill or knowledge was acquired then the process was over. Learning was not viewed as a continuous life long process but rather as a series of discrete events. This is akin to Merry's (1995) non reflective, 'maintenance' learning and notions of the organisation as a machine which uses training as a tool to fix problems. These respondents reflect the traditional face of the University.

Six of the staff interviewed identified learning more about the University. One was able to 'build up a bigger picture of the OU.' Another, a senior manager, with over 10 years at the University, thought he had learnt more about the values of the University and its sub cultures. The IES study comments that the OU and the retail company were the only two out of the five organisations they studied where interviewees 'spontaneously mentioned that they had learned about their organisation'. The report quotes one interviewee who stated:

> 'I learnt a lot about the way the committee system of the university works....it has a structure which I find incredibly difficult sometimes to understand.'

The report also stated that in the OU there had been a two way learning process in that the interviewees had gained a better understanding of how their colleagues perceived them and also a better understanding of how the

University worked. This, the report noted, was particularly true of the junior staff who had previously had difficulties understanding the organisation. One:

> 'spoke about realising that they had learned not to assume that everyone shared their understanding and that there was ignorance in some areas of what others took for granted.'

Two of those interviewed had identified learning as the gathering of information, others had seen it as experiential. However, there were deeper, more subtle learning and discovery processes taking place which respondents identified and which they believed had affected their behaviours and outlook akin to Merry's (1995) notion of evolutionary learning. Two interviewees spoke of having gained personal insights into themselves. One of them described this as an 'attitudinal insight'. One respondent discovered that it 'was ok' to be frustrated by the slow pace of change and that there were benefits in incremental change. He had 'learnt to shrug his shoulders and fight another day'. His notions of change and how it happened had been altered.

There was evidence from interviewees of 'second order' change (Dale 1994) and 'double loop' (Morgan 1986) and 'generative' learning (Senge 1992, 1994) , concepts discussed in Chapter 4. The learning was powerful enough to be recognisable at a conscious level and to be deliberately translated into new patterns of thinking and new behaviours. One interviewee who had not been used to participating in such wide ranging discussions described how he had learnt to talk to people through New Directions and now was able to participate more effectively in all kinds of group situations. He was now prepared to stand up and ask questions at conferences. Another also modified her behaviour as a result of her participation in the programme. She had discovered 'better ways of disagreeing' and discovered that others often shared her views.

Further, the IES data describes the University as one of two organisations which encouraged people to learn from mistakes and quotes an interviewee who states:

> 'It gave me the opportunity to stand back and think how to capitalise on mistakes, it focussed my thinking and now I have a more positive attitude, I encourage others to take on more risk taking behaviours.'

More evidence of double loop or deep level learning comes from the IES report. It describes how deeper learning is more than the acquisition of new skills and knowledge but the changing of mental models and deeper insights and understanding. To enable this kind of learning to take place requires 'a deeper insight, a more radical learning experience than that available from a predominantly fact based course'. The University is cited as providing an example of this deeper level of learning. Participants in New Directions:

> 'found a greater appreciation of the University's structure, the work of colleagues in different parts of the organisation, the workings of the committee system and an appreciation of how others viewed their own department.'

Further this insight was unique and one they found very useful. They also valued the chance to meet others from different areas and to work with them 'towards a common aim that made the experience especially meaningful.' As a result of this experience their horizons were broadened.

The study also notes that because many of the participants in New Directions were in relatively junior positions they found the opportunity of mixing with people from other areas very valuable and insightful.

The IES report cites evidence of what it calls 'emergent learning' (Megginson 1994[2]). This is learning that was not part of the learning objectives of the workshop or event and thus was unexpected. One participant had observed the way the workshop was facilitated and had later used this approach herself. Thus she had 'acquired facilitation skills from the facilitators themselves in direct modelling.'

The IES data provides more evidence of learning referring to a number of managers reporting that they had learnt how to manage better as a result of their participation in New Directions. The programme gave participants an opportunity to work with others from other areas and other grades and as a result some of the junior staff interviewed commented that they 'had learned how to work with different people in pursuing an end'. Other managers had changed their style as the result of feedback from subordinates during the workshops and thus became co learners and reflective practitioners (Dale 1994).

8.2.10. The Influence and Impact on Participants' Colleagues

With two exceptions the perception of all those interviewed was that their colleagues had been affected by the programme. Although two qualified this by saying that they thought that only a few people had been affected and another thought that his colleagues had only been affected for about 18 months or so. Given that most of the respondents were 'active' at one time or another in New Directions it would have been unusual if their colleagues had been unaffected.

Those who thought that their colleagues had been affected talked of 'mindsets' being affected and even 'shifted'. This was mainly due to the realisation that

[2] No reference for Megginson is given.

strategic issues were something they could contribute to. One respondent reported that there was 'a lot of interest along the corridor' and another stated that colleagues who had attended the Mistakes Workshop had been affected and had 'said it's OK to make mistakes and we'll learn from it.'

Three interviewees described a response to the programme from colleagues that was not positive. Two of these came from the administration and one from a faculty. The faculty based interviewee described colleagues who thought the programme was a waste of time especially when people were burdened with increasing workloads and very little time. Some of them were 'quite cross' about New Directions. The interviewees from the central administration described colleagues who were suspicious and even hostile to the programme. One thought that a number of her colleagues had 'remained extremely skeptical that it would change things'. The other reported that a number of senior managers wanted to know 'when's the University going to stop wasting money on this nonsense.'

Colleagues who had been unaffected came from both the academic and administrative areas. Some of the regional staff had been affected and others had not. This was because large numbers of regional staff had not 'experienced' the programme and thus were likely to be unaffected by it. Also some of the regional secretarial and clerical staff had not been allowed to attend. The fact that junior staff were often not allowed to attend events was mentioned on several occasions by those interviewed. This was an issue that was to emerge with much vigour at the Conference when differences in staff conditions became a major theme.

8.2.11. The Influence and Impact on the University

There is evidence provided by internal documents and *Open House* that the

New Directions programme did have some influence on some parts of the University and some of the top management team in particular. This is discussed in Sections 8.2.7 and 8.2.8. But does other evidence support these views? Overall the perceptions of the staff interviewed accord with these findings. A majority (15 out of 19) thought that the University had been affected by the programme. Although three of these qualified this by stating that it had only made an impact in the early days. People spoke of how:

* It made the staff think about the OU and its situation.
* It encouraged discussion about strategic issues.
* It had 'a therapeutic effect.'
* It had 'an encouraging effect' because it had addressed some of the issues.
* It had influenced the work done on harmonisation of conditions.

It was pointed out that because Geoff Peters, PVC, Strategy, had been involved and had often quoted to senior managers things said at the workshops that it was possible that some of the New Directions ideas had influenced other senior staff. This was backed up by another interviewee who stated that:

> New Directions 'brought certain issues to the surface and in some areas made senior managers aware that staff at all levels could contribute to strategic discussion about the OU.'

There was one dissenting voice, an interviewee from a faculty who thought that the University had not been much affected. In his view the University as an institution values the democratic process but because of its hierarchical structure and bureaucratic procedures it was impossible to implement such ideals in practice. He observed that the OU 'gives lip service to this kind of thing... but the structures mitigate against it.' This is an organisational example of the difference between *espoused theory* and *theory in practice*. Many

bureaucracies set up mechanisms for institutional democracy such as consultative committees, but the methods they use to operate such mechanisms and the structures in which they are embedded make genuine participation very unlikely.

The IES study sought the views of the staff on the impact that the New Directions programme had made upon the University. It interviewed a number of participants and their line managers and found that the more junior staff were generally more negative about the impact of the programme on the University than the line managers. Many did not believe the workshops had contributed anything and felt that some initiatives had failed through lack of support. One junior member of staff, however, who had been a member of one of the New Directions teams referred to the staff survey and the equalisations of terms and conditions as an outcome of the 1994 Conference. Amongst the line managers there was 'a much more positive sense of the impact on the organisation and the way in which the approach had become embedded and therefore less visibly "New Directions".' The IES interviews were carried out in April 1996 and at that time those interviewed thought that the programme made less impact than it did in the early days.

8.2.12. An Effective Change Process?

Over half those interviewed (11 out of 20) thought that New Directions had been effective as a programme for organisational change. They described it as acting as a 'catalyst for change' and providing a 'good kick start'. One senior manager thought it was very effective because:

> 'it got people to understand some of the environmental issues the University was facing and to engage with them, and to recognise that the world had changed.'

Another respondent said:

> 'I believe it shifted the University out of its complacency.'

One interviewee commented that he had originally thought that the programme had achieved very little but that over the years he had noticed changes taking place in things which had been associated with New Directions.

Three of those interviewed thought that the programme had been only partially effective. This was because not enough happened which they attributed to limited support from top managers and inadequate resources. One of them observed that although the programme did 'loosen up behaviours' and gave staff new tools and new ways of changing things it was not enough by itself to change things at the University. Another observed that although New Directions was the 'right' programme and covered 'the right areas' many things did not happen because consciously or unconsciously senior management did not want them to happen.

Five interviewees thought that the programme had not been effective in changing the University. One thought this was because the links between New Directions and the actual changes were not clearly identifiable. Another thought it was because the programme had been too small to be really effective and needed to involve more people on an ongoing basis, yet he still considered it a worthwhile undertaking and a good idea. Another thought it would have been effective if it had continued. One respondent now viewed it as 'a kind of minor aberration'.

A majority of those interviewed (13 out of 20) thought that the people who had attended the workshops expected to see fundamental changes happening

quickly. This may have been due in part to the presence of the PVC, Strategy as 'he could change the world'. Expectations were created and when people did not see major changes happening then they assumed the programme had been ineffective or only partially so.

The IES study notes that the OU is a large and complex organisation 'with procedures to match' and that to change things would not be easy as some of the barriers created 'include some of the individuals who helped create the University and are therefore very wedded to the organisation they created'. In spite of this, however, the report tells of 'considerable commonality of response' as regards change in the University. The interviewees described:

> 'an organisation that had become more flexible and less hierarchical, more sharing and more open with information.'

This it was observed was congruent with the style of New Directions which sought to improve communications and create 'a more open organisational culture.' One interviewee was quoted:

> 'I think the University is changing a lot at the moment, some of it is attributable to New Directions, perhaps only a small amount. New Directions had been a good oil making it go more smoothly it was an outlet for individuals at any level to voice difficulties and uncertainties, to vocalise those in a non-threatening way.'

The IES data refers to the University's management development programme and concludes that together with New Directions one of the outcomes they created:

> 'was a move away from an organisation that was resistant to change to

one where there is a growing awareness of the need to change. There is also a perception that it has become more open.'

Over time the New Directions programme changed. Interviewees described how in the early days New Directions was essentially about change, change processes and strategic developments. The mood was one of optimism. However, all those interviewed agreed that had changed. 4 out of 18 thought things had changed during 1995 but five others thought it was during 1996. Six interviewees thought the programme had changed as a result of a change in the environment brought about by the financial downturn and budget cuts (1995 / 1996). This change of climate and the mood change that it engendered had a profound effect on the programme. Interviewees spoke of heavy workloads, 'gloom' and 'disillusionment'. Four interviewees put this down to senior managers reverting to old behaviours and of encouraging a period of retrenchment. Thus a change in the University's external environment affected the attitudes of many of the OU's managers and their response was to rely on more traditional ways of thinking and behaving. As Merry (1995) points out most people are unwilling to make deep level or second order changes as they are afraid of the unknown and the change in external circumstances may have deepened that fear. Further, as Merry notes most people prefer to maintain the existing order and external events provided an opportunity to justify a return to status quo supporting activities.

This suggests that a participative change process in the New Directions mould will flourish when the external environment looks good and people are feeling optimistic about the future. In this situation the formal hierarchy can afford to relax the reins and allow some experimentation and even challenges to the prevailing orthodoxy. When the external environment is threatening and managers are worried about the future then the organisation will decide it is time to take control again. In such a situation a participative and innovative

change intervention that challenges the existing order is likely to be strongly resisted.

The Investors in People Initiative

Further, as described in Chapter 7, the University had undertaken to achieve the Investors in People standard and had set up a special IIP unit. Many senior and middle managers were obliged to work with their areas to meet the requirements of the IIP standard. This may have diverted interest away from New Directions.

It is worth considering IIP and New Directions as change processes within a large, complex and predominantly bureaucratic organisation like the OU. The IIP initiative was a top down process that sought to change the University by ensuring that its communications, training and development, induction and appraisal processes matched those set by the standard.

Most interviewees (18 out of 19) considered IIP to be very different from New Directions and indeed three respondents considered it 'very, very different'. IIP had a very mixed reception across the University and was described as being received with hostility and by one interviewee as having 'a bad reputation'. Overall New Directions participants viewed it negatively (11 out of 19) and it was variously described as 'a flop' and 'bogus'. It was described by four of those interviewed as 'imposed' / 'inflicted' upon the staff. Another described how it attracted 'mass cynicism'. Failure to achieve the standard was attributed by interviewees to its bureaucratic structure and formal processes and the way it was imposed upon the staff.

The IIP project had a similar lifespan to New Directions (1994 - 1996), considerable staffing support, (an IIP Project Director, and a full time team of support staff), a very substantial budget and was championed strongly by the

University's Vice Chancellor. New Directions by comparison had no dedicated full time support and limited financial resources, drawing mainly on the Personnel Division's training budget, but it did have the Pro Vice Chancellor, Strategy, as its champion. The two initiatives both worked to change the University but their approaches were very different. The IIP project took an approach to change that reflects the 'mechanistic' view as described by Durcan et al (1993) and shown in Figure 4.2 in Chapter 4. It had a prescribed set of goals to be achieved and it set out to achieve them in a highly pre planned, linear, step by step fashion that reflected a controlling and managerial approach to change. By contrast the New Directions programme with its open, unplanned approach to change sought to create change and not to manage it. The IIP project mirrored the attitudes and values of the traditional face of the University whereas New Directions mirrored its more innovative, creative and sometimes radical aspects.

The IIP initiative did not consider the University's external environment and both the opportunities and threats that lay there. Thus it did not seek to directly address these, for example, the need to consider the development of new technologies for teaching and learning, nor the need to improve the OU's strategic marketing processes. Thus its brief did not include some of the real strategic issues.

After consideration of the IIP project and New Directions I would suggest that though a change process may mirror many facets of an organisation it will not succeed if it does not tackle what many groups of staff believe are the real strategic issues in an effective and sincere way.

I would tentatively propose that there are implications here for many organisations considering a change process and I would suggest that a change

process should always take into account the complex, dynamics of real life systems. Further if it is to have a good chance of success then a change process should consider taking into account the strategic thinking capabilities of all its staff and their assessment of the needs of the organisation at that time. In some individuals and some parts of the University New Directions had a significant impact and second order change (Dale 1994) and double loop learning (Morgan 1993) also took place. In Stacey's (1992, 1996) view an organisation needs to consider three kinds of change, 'closed', 'contained' and 'open-ended,' if it is to survive. The New Directions programme provided an opportunity for some employees to explore issues related to closed and contained changes and to take follow up action, and it created an environment in which open-ended changes were encouraged and emerged.

The next section focusses on a specific New Directions event, the 1994 Conference, in order to consider the programme in more detail and to further flesh out and validate wherever possible the evidence gathered on the overall programme.

8.3. The 1994 New Directions Conference

8.3.1. Introduction

The 1994 one day Conference is both a macrocosm and a microcosm of the New Directions programme. It was not part of some grand design. It had developed from a suggestion by the Director of Personnel in the winter of 1993 and 'the enthusiasm generated by the New Directions workshops' (*Open House* , June 1994). It took place just over a year after the programme began and was attended by a hundred staff drawn from all categories and roles. It was possible for this thesis to collect considerable data on people's experience of

the Conference and the themes and issues raised and its perceived role in stimulating changes. The evidence came from interviews, workshops and internal documents, *Open House* and the Institute for Employment Studies study. Overall there is a convergence of views from each source, any differences are discussed.

The idea of investigating the Conference was to use an event to interrogate New Directions. In spite of the time gap between the research work and the Conference people were readily able to recall their thoughts and feelings at the time.

8.3.2. A Change Process within a Change Process

The Conference Team decided that the Conference was to be about changing the University and about encouraging the staff to become involved in helping create the 'new' OU. Interviewees described how it sought to do this by:

* acting as 'a change agent within the University by just allowing people to bring issues forward and have a say.'
* starting 'the process of initiating change in the OU'.
* changing moods and attitudes.
* seeking to identify problems and actions that could be taken.
* encouraging people to think of the future.
* encouraging participative change by involving everyone
* promoting the New Directions process as 'a grass roots dynamic for change within the OU'.

One of the Conference Team interviewed described its aims and approach as 'subtle, second level'.

The Conference provided staff with a chance to exchange views and voice their

opinions. This was valued most by those not usually given this opportunity and particularly the opportunity to express their views directly to senior managers. One delegate quoted in *Open House* said:

> 'It had "been valuable to be able to speak and listen for those who do not usually get the opportunity to speak and say what they feel, and have senior management here to listen to them."'

Although this was appreciated by everyone, one or two did not think that this opportunity would make any difference to things. It may be that those who doubted that the Conference would help change things belonged to two types: i. those against change and ii. those who thought the Conference approach would not work.

Half of those interviewed believed that the Conference had achieved its aims.

8.3.3. The Conference Experience

A wide range of feelings and emotion was described by interviewees and participants at the workshops, see Appendix 3. Examples 1 and 2. The mix of emotions was for many of the participants related to their hopes and their concerns for the future. The Conference exposed existing hopes and fears but also raised new ones. Some of the technical staff, for example, were afraid that the introduction of new technologies would lead to job losses in their area. Other anxieties were short lived, for example, several secretarial and clerical staff were apprehensive and anxious about how the day would go and whether they would be listened to, but they particularly appreciated the chance to put their views across. Overall the non activists were more concerned about the future than the activists who overall were more positive.

Some members of the Conference Team were anxious and keyed up on the day because they had organised the Conference and were wondering how well it would all go. Two of the secretarial and clerical members of the team, were running a workshop for the first time and one described herself as 'terrified' beforehand. However, the workshop went well and she found the experience very fulfilling. In the event the Conference was 'beautifully organised' and 'brought out the best of the creative side of the University'. One manager activist recalled that everyone thought it was 'a terrific show' and that one senior administrator had told him it was the best conference she had ever attended. Further, he described how even recently someone had reminded him of what a good event it had been.

Overall people (15 out of 19 interviewees) found the Conference to be a positive experience. Several spoke of a lot of excitement and optimism in the air and three used the word 'buzz' or 'buzzing' to describe the atmosphere. One interviewee commented that:

> 'By lunchtime people were quite excited, stimulated.'

Several of those who enjoyed the Conference were considering their own role at the OU and wondering how they could contribute. Others wondered what the Conference was trying to achieve and how it would affect the University. The opportunity to make contact with other organisations was valued.

Three of the non activists (two technicians and one clerk) at the workshops spoke of cynicism, suspicion and opting out. They were not convinced that senior management would listen to their views and if they did they doubted that they would act upon them. These staff came from two of the more hierarchical and mechanistically managed areas of the University, the warehousing facility and the student administration.

But others spoke of optimism for the future, if tinged with caution. One Conference delegate quoted in *Open House* said:

> 'At last there seems to be a powerful way of channelling the untapped energies that exist within the OU - everywhere at all levels. I hope it can be sustained.'

8.3.4. Major Recollections

The one session that stood out for most respondents was the final plenary session when participants presented their views on the OU and its future to the senior team and other staff present. The presentation on the needs of the staff and the need for harmonisation of all terms and conditions stood out from all the others in this session. It had received a standing ovation and one delegate who had been 'very proud and pleased' to have been part of this session described the whole experience as 'mind blowing'. Another in recalling the plenary sessions referred to 'the notion of the OU still working to a three sleeved jumper' pattern. He was referring to the state of the OU's marketing strategy.

Of the workshops that made an impact most people mentioned either the presentation by the executive from Rover or the consultant from the Metropolitan Police. Both came from large, complex, hierarchical organisations that were national institutions and there were obvious parallels with the University. Both ran sessions which described the major changes that their organisations were either undergoing or had undergone and the effect that this had had on their organisation and the staff. For some individuals this experience was highly energising. One interviewee was so impressed that he undertook a whole range of activities inspired by the 'Rover' session. Stacey (1993, 1993) as discussed in Chapter 5, suggests that one way to cope with uncertainty and

change is to develop multiple cultures within an organisation. Cultures that challenge existing perspectives. The OU has many cultures and many which are shared but exposure to stories of changes in other organisations served to introduce a measure of challenge and diversity into the existing cultural perspectives of some of the Conference delegates. The speakers from the external organisations also introduced new information into the organisation which is essential if creativity and change are to flourish (Nonaka 1988).

8.3.5. Main Themes and Issues

Interviewees and workshop participants recalled that a number of major themes or issues were voiced at the Conference. These are shown in Appendix 3. Examples 5 and 6. These recollections are confirmed by the data in the Conference Report as the following OHP slides show.

1. Staffing Issues

1. MAJOR REVIEW OF PAY AND CONDITIONS 2. WE ARE LOOKING TOWARDS A BREAKDOWN OF BARRIERS BETWEEN DIFFERENT STAFF CATEGORIES 3. TRAINING FOR TOMORROW (TO BE LINKED TO APPRAISAL). MANAGERS TO BE TRAINED IN PEOPLE SKILLS. 4. CREATIVE H.R. MANAGEMENT

This was highlighted by most of those interviewed (11 out of 17) as a major theme to emerge. It is worth noting that one senior manager pointed out that the Staff Survey (1995) and the Stress Audit (1997) and a UNISON Stress Audit (1997) also highlighted the theme that people are very concerned about the way they are treated at work. One of the strongest messages to emerge from the Conference was 'a call for equality of terms and conditions' (*Open House*).

2. Marketing.

The need to improve the OU's marketing strategy was cited as an issue by almost half of those interviewed (7 out of 17) and is supported by the Conference Report.

> 'FOCUS ON MARKETING
> * Know the external environment - be ahead of the game
> * Know what our vision is and what our priorities are. Publicise these'

Unless marketing was improved the following scenario, in the form of a news item, was envisaged:

> 'The rump of the old Open University, including the Walton Hall site, was finally sold today to the new British Telecom World Educational Corporation.'

3. New Technology Development.

The text below is an example of this theme (from Conference Report).

> **MISSION**
> To adapt positively to the challenges of the multi-media environment to the mutual benefit of students and staff of the Open University.

This was recalled as a major theme by 7 of those interviewed and most of the workshops participants. The Conference Report records that staff presenters warned that the University had a '"head in the sands"' attitude and that the 'OU had to offer what the market now needs in terms of multi-media'.

4. Improved Communications.

'Improving Communication:
Involving People

Recommendation:
Bottom -up consultation process integrated with effective / appropriate information-giving to all levels of staff'

This was also recalled by several workshop participants and 5 out of 17 staff interviewed. Interestingly, however, the suggestion for action comes in the form of a 'recommendation' which is derived from formal procedures and is standard committee and bureaucracy speak.

5. Low staff morale.

Low staff morale was recalled as an issue by all groups at the workshops but not by interviewees. The Conference Report confirms that this was due to a number of reasons shown in the slide below.

Open and Equal? - And fair?

Morale is poor because:

* Conflicting messages
* Barriers between staff
* Inability to deliver on commitments
* We have made the central task of the OU a treadmill

Power to local teams

In the workshops two other issues were also recalled:

6. Need for Leadership and for Management with better people skills.
7. Need for Flatter Organisation and better Co-operation between departments.

A few of the non activists expressed little confidence in their existing management and their ability to handle the future. This links to the need others

identified for more interpersonal skills and communications skills training for managers.

Several of the activists in their workshop thought that a flatter organisation would reduce barriers and improve relations between departments.

The themes and issues that emerged from the Conference indicate how aware the delegates were of the challenges the University faced from its external environment in the shape of growing competition and the emergence of new technologies. But a major thread running throughout was the importance of addressing internal issues too, and especially staffing concerns, if effective change is to be achieved. One group of delegates were under no illusions as to the kind of organisation they belonged to and showed an OHP of 'a 25 year old Greek temple as ...the kind of building the OU produces, with bits that are in the wrong place'. This was referred to in Chapter 7, see Figure 7.5.

8.3.6. Achievements

The Conference as part of New Directions sought to bring about changes in the University. Thus progress on any of the themes / issues raised would provide a measure of how much the Conference and New Directions had influenced the University and might provide some tangible signs of discrete change events.

Data from the interviews and the workshops (See Appendix 3. Example 5 and 6) suggests that, in the view of the participants, by autumn 1997 all but two of the issues raised at the Conference were progressed in some way.

It was agreed that the Conference had raised issues that may well have already been under consideration but that in doing so it had turned a spotlight on them and raised their profile. The role the Conference had played in getting these

issues on the University's agenda was described by one interviewee as 'a subtle influence'.

Figure 8.5. summarises the issues raised and shows whether they were progressed or not. See also Appendix 3. Example 5 and 6.

Figure 8.5. Conference Issues and Outcomes.

Issue / Theme	Outcome / follow -up
1. Staff policy; equalisation of staff terms and conditions; more staff development; need for a PVC for Staff.	Significant progress
2. Marketing Strategy: importance of customer research & corporate identity	Significant progress but more needed
3. New Technology Development - fear of being left behind	Very significant progress
4. Need for improved Communications	Significant progress but more needed
5. Low Staff Morale	No progress
6. Need for leadership and for management with better people skills	No progress
7. Need for Flatter Organisation	Some progress

1. Staffing issues.

There was overall agreement at the workshops and from a majority of those interviewed (13 out of 17) that the Conference had been an important influence in ensuring that the staff policy issues been highlighted and picked up. Within two months of the Conference *Open House* reported that talks were taking place on addressing '"unjustified" differences in terms and conditions' which had been a major issue raised at the Conference. A schedule of differences had been drawn up by Personnel and sent to the trades unions and further discussions were due to take place in the autumn.

The decision to go ahead with a staff survey was seen as a response to the staffing issues raised by the Conference. It was carried out at the end of 1994 and confirmed that many of the issues raised by participants at the Conference reflected the concerns of all the staff. It found 'widespread concerns about inequalities in terms and conditions'. Four of those interviewed thought that this issue had been picked up because so many senior managers had been at the Conference and had witnessed staff feelings on the matter.

A PVC with responsibilities for staff matters in the strategic context was appointed four years after the Conference.

2. Marketing.

The Conference was seen by four of the activists (out of 7 who identified it as a theme) as having a positive influence on marketing developments at the University. Workshop participants agreed that the issue had been progressed with a reorganisation and the setting up of OU World Wide with the posts of Development Manager and Marketing Manager as key roles. There had been a lunchtime briefing session on marketing. However, it was agreed that more work was needed on market research and on what was described as 'an amateurish approach'.

3. New Technology Development.

It was agreed at the workshops and by 5 out of the 7 interviewees who listed New Technology as a theme, that significant progress had also been made on the development of new technologies and a great deal had changed. There was general agreement that these actions may have already been under consideration but that the Conference had given them a major impetus.

4. Improved Communications.

Workshop participants agreed, as did of 4 out the 5 interviewees who recalled

this issue, that there had been progress. Several activities were seen as directly attributable to the Conference and New Directions including the provision of Lunchtime Briefings for all staff on strategic issues. These had now been mainstreamed as 'Off the Record' lunchtime briefings by the Public Relations department. A series of communications workshops had also been organised by the New Directions Action Group in response to the Conference plea for better communications.

Some of the non activists, however, felt that although there was some listening by senior staff much more was needed. Several thought that this was unlikely to change as listening was not part of the OU culture.

5. Low Staff Morale.

It was agreed that no progress had been made on the issues of low staff morale, and that the downturn in the University's financial situation since the Conference had further lowered staff morale. The technical staff described how fear of job losses from out sourcing was affecting morale. It was argued by several workshop attendees that special attention should be given to the needs of the staff and that this had not been forthcoming.

6. Need for Leadership and for Managers with better people skills.

The leadership issue was not identified by those who were active in New Directions. Overall the activists had felt empowered by the Conference and New Directions to take action themselves but some of the non activists were expecting changes to be made for them. Their view of management drew on traditional notions of leadership where senior managers were meant to plan for the future and to direct their staff towards it. This they did not think their managers were doing and thus they articulated the need for leadership.

7. Need for Flatter Organisation and better Co-operation between departments.

It was agreed that there had been some progress as there were now more ad hoc groups in the University and more recognition of the need to cut across formal structures. Inter -unit contracting had also changed attitudes between departments. Apart from the ad hoc groups the Conference and New Directions were not seen as directly contributing to these developments.

8.3.7. The Conference Impact and Individual Learning and Discovery

All those interviewed and with the exception of 2 delegates at the workshops, one of whom was not sure, agreed that the Conference had made a personal impact upon them. (See Appendix 3. Example 3.) The majority viewed this in a very positive light and were able to describe in detail some of the benefits they felt had accrued. However, two of the technical staff were made uneasy by the Conference. They saw it making a personal impact on their working roles. They expected to work longer hours and saw the increased use of new technologies leading to redundancy. (See Appendix 3. Example 3.) One of the New Directions slogans derived from *Plans for Change* was: 'From complexity to simplicity'. This was a plea for simpler, less bureaucratic procedures. These staff, however, thought that this would lead to redundancy. For them simplification meant replacing staff with the latest equipment and making their technical expertise unnecessary.

A significant number of staff interviewed (6 out of 16) described how their confidence had increased as a result of their involvement in the Conference. They had participated in a successful event some of them in roles that were new to them. This increase in confidence affected all categories of staff. Not only did people experience a boost in confidence but many built upon these feelings and followed up with action. They had learnt that they could rise to new challenges and do well. As a result of this learning some took on more new challenges. One secretary described how she had subsequently become more

involved in a number of projects at the University including NVQ assessment, EQUATE and the Home Working Project. She believed that her involvement in these was directly attributable to her experiences at the Conference.

Another secretary told how the confidence she had gained as a result of running a workshop at the Conference had 'acted as a spur to go on and take some management courses.' Further, she had arranged a meeting with the Director of Personnel to discuss some of the issues that had arisen from the Conference. She had also fed ideas from the Conference back into her office team and to the Women's Network. As Leonard-Barton (1994) makes clear, it is essential that people feel respected and have good self esteem if they are to learn.

Several interviewees had discovered that others in the University were eager for change and this had increased their confidence and reaffirmed their beliefs. One administrator described how the Conference had reaffirmed to him that there was 'still a chance to change things' and he felt that he was 'no longer whistling in the wind.' He felt encouraged to carry on trying to make changes and believed the Conference had created more channels through which to contribute to change.

There was considerable evidence of reflection and double-loop (Morgan 1993) and 'generative' (Senge 1992, 1994) learning amongst those in the study. Two of those interviewed thought that the Conference had broadened their outlook on life at the OU and that they now saw things differently. For example, one interviewee now realised that before the Conference his view of the University had been too narrow. His horizons had stretched and he saw new ways he could contribute to his role. As a result he was now involved in NVQs as an assessor and verifier and was involved in writing national standards for the RSA. He directly attributed this to the impact of the Conference.

In another example one senior manager had discovered that there was much more 'drive for change underneath the organisation, underneath the hierarchy, and that it was the soggy middle that was the problem.' In other words, the more junior staff were eager for change but many middle managers had a vested interest in maintaining the status quo. They did not want things to change and consciously or unconsciously resisted it. As a result of his experience at the Conference he had now changed his views on the attitudes of middle and junior managers towards change.

One academic described how the Conference had made a significant impact upon his thinking. His generative or double-loop learning had led to recognisable action and change. He had been very affected by the discussions on different terms and conditions and recalled how 'the telling example' of a secretary not being allowed to take out an inter library loan had influenced his thinking, especially in the context of the OU as a learning organisation. He had followed up the Rover workshop and had written around the OU to see if anyone was carrying out any research on Rover. Further, he obtained a copy of the Rover Experience video and went on to make a bid for research funding to set up a learning programme at the University. He also wrote a paper on the OU and the Learning Society which explored the OU's contribution to learning in the UK.

Many people had been energised by the Conference and its impact. One course manager, for example, had been 'really recharged' by the Conference and believed it had encouraged her to become more politically active, to approach the General Secretary of the AUT at their council meeting shortly after the Conference, and to join the National Executive.

Eight of those interviewed described how their attendance at the Conference had inspired them to get involved with New Directions and the Staff Survey

Team. One secretary recalled that she felt committed to the approach and ideals of the New Directions Conference Team and 'signed up on the day'. One member of staff recalled that she 'wanted to be part of it' and had emailed the PVC, Strategy a few days later asking how she could get involved. She was, she states 'quite inspired' by the Conference and the Conference Planning Team. She felt she had a lot in common with the team as they 'wanted to do something and not sit around moaning about the place.'

8.3.8. The Influence and Impact on Colleagues

Opinions were divided over the question of whether or not colleagues had been affected by the Conference. Several were unsure, but just over half of those interviewed (7 out of 16) thought that their colleagues had been affected, especially those who had been there. They considered the impact on those who had not attended was minimal. Further any response was often cynical or disinterested. Many senior managers responded with skepticism and even hostility. One senior manager described how many colleagues began to think that the Conference posed a threat, particularly those who had not been there. They thought that the Vice Chancellor and the PVC, Strategy, were taking too much notice of 'the lower groups in the organisation'. Some senior staff thought that 'revolution was in the air.' Overall participants at Workshop 1 (non activists) (Appendix 3. Example 3.) thought that colleagues had been unaffected whereas the views of the activists at Workshop 2 were almost equally split between those who thought the Conference had made a negative impact, those who thought the impact had been positive and those who thought it had made little or no impact. (See Appendix 3. Example 4.)

Five of those interviewed reported a more positive response by colleagues. They thought that those who had attended were now more interested and involved in strategic issues. Further, some had been so enthused by it such that

a number had been moved to take action themselves. One secretary reported how other secretarial and clerical staff had spoken to her about the benefits they felt they had gained by being at the Conference and many were keen to sign up for other New Directions workshops. She cited the example of one of the marketing team who had approached the PVC Curriculum Development to talk about the need to market things differently. One respondent thought that the Conference had given his colleagues 'a little bit of hope' that some of the issues that concerned them might be dealt with.

There were very few regional staff at the conference and although several had been present but they would have represented only a few of the 13 regions.

Overall the perception of those who attended the Conference is summed up in the words of one manager who said that it had affected 'a definite minority of people for whom it changed their whole life at the OU.'

8.3.9. The Influence and Impact on the University

As shown in Appendix 3. Example 3 and 4, there was agreement from all groups of staff at the workshops and a majority (15 out of 16) of those interviewed that the Conference had made an impression on the University as a whole, though the nature of this varied. A number of reasons were given for this. There was widespread representation of staff at the event and so word spread around different levels and in different areas of the organisation. This spread of involvement made it a unique happening too. Further, it was a very successful event and received extensive and positive coverage in *Open House*.

In his memo accompanying the circulation of the Conference Report in November 1994 the PVC, Strategy described the Conference as 'an outstanding success' and notes that 'already a number of developments have

taken places as a result'. The Report lists 7 follow -up activities including:

* the setting up of the team of volunteers from the Conference to form the Staff Survey Team.
* the production of a user friendly version of the Staff Policy Committee Action Plan to be circulated to all staff.
* an invitation to all staff to input to the next stage of the New Directions Programme.

The report was circulated to all heads of units and sub units as well as Conference delegates. The senior managers who did not attend were recommended to read the report as it would provide them with 'some valuable insights as regards the information exchanged and ideas shared'. The delegates were encouraged to read it as it would provide 'an opportunity to recall the day's events and stimulate further reflections'. Finally the PVC wrote:

> 'I am keen to ensure that we do not lose all the good ideas nor ignore the issues expressed at the Conference and would ask you to contact me if you wish to assist me in taking stock and ensuring that we continue to move forward.'

Also, some months after the event all the delegates and the University's senior management where reminded of the messages it carried and encouraged to continue to build upon them.

The word 'impetus' was frequently used to describe the role the Conference had played in encouraging a number of changes. Interviewees referred to:

* 'massive spin-offs' such as inter unit planning and the development of project based initiatives.
* how it influenced some of the strategic decisions taken.
* that together with the workshops it 'led to a cultural shift' for many staff

who found they could usefully think about strategic ideas and that their ideas could be valuable and relevant.

* many new technology developments were a result of the Conference because the 'IT world listened'.
* the Conference acted as a 'catalyst' for the organising of the Staff Survey.

This latter comment is confirmed by a progress report of 28th June 1994 prepared by the Survey Team which notes that the survey 'should be linked to recommendations from the New Directions workshops and conference'. Further it states that it was agreed that the survey team should be made up of conference participants who would steer it with the Director of Public Relations as professional manager.

The Director of Personnel who attended the Conference prepared a leaflet for all staff on the University's plans for developing staff and removing inequalities in conditions. This was written in 'plain English', printed as one of the New Directions series and distributed to all staff in February 1995. One interviewee thought that some senior managers had realised that they could not ignore the messages from the Conference. Another thought that some managers felt uncomfortable and another observed that some of them thought that it was dangerous nonsense.

The situation in the regions was different. Here, participants thought that the Conference had made little impression and this was put down to the fact that there had been no regional directors there.

Two of the respondents thought that the Conference's impact had been short lived. 'It had initially been the subject of discussion' then it had faded and 'been allowed to die away like most things.' One of them thought that it had had 'an

ameliorative effect' in that 'it made people feel better for a short while' although it was 'a drop in the ocean of events'.

To summarise, the Conference had been a New Directions one day event with a 100 delegates which had sought to push forward in visioning the future and changing the University. It had made a considerable impression on many of those there and appeared to exert a range of influences on some other staff too. Some of the mainly positive aspects of the Conference were as follows:

* It influenced or gave an impetus to a number of significant and recognisable changes.
* it boosted the flow of change within the University.
* It enabled the the 'grass roots' of the University to articulate their views and be heard by senior and top managers.
* It encouraged and inspired many staff to take actions of their own.
* It provided a fertile learning environment.
* It was a successful landmark event that put New Directions on the University 'map'.

Some of the mainly negative aspects were as follows:

* It raised anxiety levels for those staff who felt threatened by changes, especially in new technologies.
* It failed to reach most of the regional staff.
* It added to the irritation some managers felt about New Directions.
* Increased marginalisation of academics

8.3.10. Emergence of a 'Democratic' Strategic Action Plan

I would suggest that one outcome of the Conference was the presentation of a new strategic action plan. The delegates had taken the University's official strategic action plan (*Plans for Change*) absorbed and digested it via the

workshops and together with their own ideas and thoughts produced a 'democratic' version which clearly stated priorities for action if the University was to successfully change itself and meet the challenges of the future. This strategy for action was prepared for, and presented under the aegis of the final plenary session which had called upon the delegates to make presentations under the heading of 'Strategic Recommendations for the Future'. The delegates at the Conference in rising to the challenge of the final session had produced a realistic strategy for the future which was recalled in the shape of key themes / issues by interviewees and workshop participants. See Figure 8.6.overleaf.

Here, I would tentatively suggest is a fresh perspective on the process of strategic change. Involving as its does 'a host of individual actions' and a strategic learning process which was developed and encouraged through the workshop experiences, it models aspects of the 'consensus' strategy of Mintzberg and Waters (1989) as described by Eccles (1993) discussed in Chapter 4. But, I would suggest that it goes further than that. It is a strategic approach that seeks to involve everyone in an organisation and sees strategic thinking and strategic activity as an unfolding symbiotic process. This rejects the logical sequential approach with strategy devised by senior management that is argued by Eccles (1993) and Quinn (1989). It resonates with notions of strategy development advocated by Stacey (1992, 1993) in Chapter 5 and Chapter 10. Whereas the traditional, formal, strategic planning processes of the University involved the collection of information and a range of complex planning and analytical activities which in Stacey's (1992) view are unhelpful and pointless, the staff of the University via the New Directions programme used, consciously or otherwise, a more innovative and radical new sciences derived approach. The creation of a 'democratic' strategy for action fits with Stacey's (1992, 1993) 8 steps for it emerged in response to the 'ambiguous challenges' of the New Directions programme. For example, a central

Figure 8.6. 'Democratic' Strategy for Action

Issue / Theme	Main Focus	Issue Core	SWOT	Time Focus
1. Staff policy; equalisation of staff terms and conditions; more staff development; need for a PVC for Staff.	Internal	People	Weakness	Present
2. Marketing Strategy: importance of customer research & corporate identity	External	Marketing & Income	Opportunity	Present & Future
3. New Technology Development - fear of being left behind	External	Technology	Opportunity & Threat	Present Future
4. Need for improved Communications	Internal	People Management	Weakness	Present
5. Low Staff Morale	Internal	People Management	Threat	Present
6. Need for leadership and for management with better people skills	Internal	People Management	Weakness	Present
7. Need for Flatter Organisation	Internal	Structure	Weakness	Present

challenge put to staff at the workshops was: 'How do we expand student numbers and maintain quality provision?' The programme encouraged and facilitated self organisation, risk taking and opportunities for complex learning (Stacey 1992, 1993). People focused on what had happened in the past and what was currently happening and they explored the muddles and the messes (Stacey 1992) that frustrated them and which they knew needed attention if the University was to seriously change itself.

Figure 8.6. shows the 7 main themes to emerge from the Conference and considers them from 4 main aspects. It shows a predominantly internal focus and puts people themes at the core. It does also, however, consider the use of technology, the importance of organisational structure and of the University's image or external profile. A simple SWOT analysis highlights 4 areas of weakness, 2 opportunities and 2 threats. Its time focus is fixed chiefly on present needs for action. It is an approach to strategic change that does not rely on the introduction of major structural, financial, or procedural changes as part

of a planned management exercise. Rather, it is an approach that sees people as the necessary lifeblood of any strategic change process. As the text from one of the presentation slides puts it:

> 'The importance of achieving the University's goals lies with the commitment, motivation and enthusiasm of its staff.'

Here is a 'democratic' or 'grass roots' strategy that approaches strategy creation from a fresh perspective. Thus, I would suggest it is possible, even in a complex, heavily bureaucratic organisation like the OU to develop a 'democratic' change strategy. This is encouraged through a facilitated and enabled self organising process like New Directions. A 'democratic' strategy is not strategy in the traditional sense but rather if fully realised is about all the people in the organisation enacting the strategy which unfolds as they act. This accords with Stacey's (1996) 9 point theory of organisation whereby new strategic directions spontaneously emerge as a result of a self organising process created via political interaction and group learning.

Figure 8.4. in section 8.2.7. shows how the New Directions programme influenced the formal strategic planning processes and enabled individuals to participate. As the evidence from the Conference suggests a 'democratic' strategy for action emerged that would fit alongside the University's *Plans for Change*. It had 7 key points for action which are seen as priorities by a cross section of University staff and it viewed planning and implementation as one process and not two separate entities. Further, it provides a yardstick against which formal plans may be measured in terms of likely staff commitment and realistic objectives. It also makes use of a rich source of the organisation's history via the collective weaving together of knowledge of the organisation andimaginative possibilities for the future. Thus key groups of staff in an organisation who become actively involved in an organisation wide change

intervention could make a contribution to strategic institutional agendas.

8.4. The New Directions Teams

8.4.1. Introduction

The 1994 Conference Team and the Staff Survey Team are two very significant features of the New Directions programme. Both enabled small groups of staff to contribute to the New Directions change process by focussing on a particular project and making it happen. The projects produced recognisable landmarks, achievements which demonstrated what small groups of enthusiasts could do. The two teams with the 1995 Action Group influenced and enriched the flow of the programme. Exploration of these teams was key to this thesis and was carried out to shed light on the nature of these teams, their internal dynamics and the role they played in the New Directions change intervention. The data on them was collected via interviews, from a group exercise on the teams in the activists workshops and from a specially designed team questionnaire. This latter sought to explore the nature of the teams in relation to self organising teams and this evidence, along with other new sciences aspects, is discussed in detail in Chapter 9. As before the evidence from all sources is pulled together. Overall there is a large measure of agreement but any differences or contradictions are discussed.

8.4.2. A Motivated Response

Why did people volunteer to join the New Directions teams? To take on additional roles and responsibilities is not something that people seek to do lightly. Both teams were set up in response to a request from the PVC, Strategy

for volunteers to create a team or group to carry out a project. One was to design and organise a one day conference and the other was to arrange for a university wide survey of staff. The response from the staff, all of whom had attended a New Directions event, was very good. Some 30 staff had volunteered to form the Conference Team. In each case I was given the task of creating a smaller but representative team. I did so in consultation with several staff and on the basis of representing as many staff groups and locations as possible and waiting for 'natural wastage' to occur.

Those who volunteered for the Conference Team gave a mixed bag of reasons. Some gave personal reasons such as an interest in strategic issues and one academic thought the experience would be good on his cv. Three interviewees spoke of wanting to do something active to support changes in the University. One member of secretarial and clerical staff said that she 'wanted to be involved in trying to change the University' even though she had 'a battle' persuading her manager to let her participate. Her determination to join in exemplifies the way in which people were highly motivated to create the teams. Also it provides an example of the very hierarchical attitudes taken by some of the University management towards junior staff.

In contrast the majority (5 out of 8) of those who volunteered to join the Staff Survey Team gave one reason for doing so. (The 9th member was the Director of Public Relations, who was not a volunteer.) They had been encouraged by their experience of New Directions and because they had been 'so inspired by the Conference.' Two mentioned their interest in staffing issues as one of their reasons for joining.

8.4.3. A Rich Interaction of Volunteers

Both teams unanimously agreed that working in a group composed of a mixture

of staff drawn from all categories and grades was a very positive experience with many advantages both in terms of getting the tasks completed and in terms of individual development and shared understandings. (See Appendix 1. Example 3.) Advantages cited by the Conference Team included:

* 'enjoyable', 'fun' and 'refreshing'.
* members learnt more about how other parts of the University operated and this sharing of different perspectives gave the team 'a wider spectrum' and 'something different'.
* People were interested in discovering from others with different working roles.
* a genuine exchange of viewpoints, a sharing of ideas and considerable listening.
* 'the interactions were richer and there was more diversity of experience'.

The Survey Team spoke of the experience of working with a mixture of staff as:

* 'good', went 'very well' and 'lots of ideas'.
* members learnt more about the University and gained 'a more rounded picture of the OU'.
* Valuable having different perspectives in the group and 'a variety of input and responses'.

For both teams coming into contact with staff they did not normally work with created an enriching dynamic.

A significant majority in each team (5 out of 8 Conference Team and 7 out of 9 Survey Team) could see no disadvantages in working with a mixture of staff. One technical manager was initially a little worried about working with people he did not usually mix with and two of the Survey Team who had experience of survey work could see some disadvantages in using a mix of staff. They felt that

the operational difficulties of such work was not always understood nor their experience appreciated by fellow members.

It was difficult for some secretarial and clerical staff to get time off to attend the meetings because it was not a recognised part of their role. Clearly there are managers within the University who cannot see the value of more junior staff participating in activities outside their normal roles.

Both teams (all of the Conference Team and 7 out of 9 of the Survey Team) thought there were many advantages to working in teams made up of volunteers. They spoke of people 'wanting to be there', of people's enthusiasm, their keen interest and their positive attitude. One academic commented that 'a volunteer is worth 10 pressed men.' The overall impression that emerges is that because they were volunteers people believed in what they were doing and were highly motivated and committed. This as one respondent describes it 'gave it drive'. Further the high level of personal motivation and commitment meant that 'it all jelled and we got on with it'. Also, there were no political or departmental agendas to get in the way.

If there is a drawback to teams being made up of volunteers then it relates to the difficulties of having to 'squeeze time' out of the working week to participate. This is perhaps more a comment on the status of volunteer teams in the organisation than on the nature of the teams themselves. Several respondents had observed that if their team had been a formal university team then they would have either been allocated the time or formally seconded to the project. The mechanistic attitudes of some areas of the University was reflected in the need for secretarial and clerical staff to obtain permission to attend. This was mentioned as a drawback, especially as this was not always given.

8.4.4. A Clear Sense of Purpose

The interview data showed that everyone in both teams understood why the teams had been formed and what their core purpose was. For the Conference Team it was to organise a conference and for the Survey Team it was to deliver a staff survey. Some of the survey team saw their task in a straightforward way whereas others saw a more complex picture, for example, the need to give a representative view of the University across all categories and all units and to address some of the issues raised at the Conference.

8.4.5. Resources and a Measure of Success

There is a difference in the two teams in terms of their perceptions of how well they were funded to carry out their tasks. The 1994 Conference Team interviewees thought their financial resources were limited or minimal whereas the Staff Survey Team thought theirs were adequate. The Conference Team described their financial resources as: 'a shoestring budget' and 'a bit strapped for cash'. The Survey Team agreed that there was adequate funding for their project with sufficient money to pay external consultants to carry out the survey.

Everyone agreed that staffing resources were not well provided for. Several members of the Conference Team pointed out that there was no-one seconded to work with the team to help organise the Conference as was usual for such projects and that everyone had to fit their team work in alongside their usual work. One of the team comments that they were 'always doing things with people's goodwill'. With the exception of one manager, all the members of the Survey Team had to carry out their survey work on top of their normal jobs. One commented:

> 'No personal time was allocated in spite of the importance of the project.'

But interestingly both teams observed that there was a lot of resource in each team in terms of energy and goodwill and that these made up for any shortfall in tangible, material resources. Several members of the Conference Team commented too that they received good 'moral support' from the PVC, Strategy and this was especially valuable.

A member of clerical staff summed up her feelings on resources by claiming that her team (the Conference Team) had 'produced a golden purse off a sow's ear'.

Everyone interviewed agreed that their team had been very successful in carrying out its tasks, especially in relation to the resources and the time available. They were surprised at how well they had managed given that their team was made up of volunteers and that resources were not abundant. Overall they were enthusiastically proud of their success using phrases such as: 'extraordinarily successful' and 'a brilliant job'. One member of the Conference Team commented:

> 'put on an absolutely outstanding conference.....I don't think with even greater resources we would have done much better'.

The Staff Survey Team was very pleased with the good response to the survey. One manager commented that it was 'one of the most successful projects' he had ever been involved in.

8.4.6. Team Working

Evidence from the interviews and the team questionnaire (Appendix 2. Example 4.) confirmed that both teams were unanimous in considering the way they worked to be effective. The Conference Team appears to have been especially

spontaneous and creative in its way of working, whereas the Survey Team was especially focussed on its prime purpose ie. the survey. This suggests that the nature of the projects affected the way the teams worked. Ideas and creativity were needed to design a Conference that would appeal to all OU staff, whereas the design of a survey document required exploration and understanding of both the issues and survey methods.

Working in the Conference Team was described in the interviews and the workshop (Appendix 3. Example 7.) as:

* Like working in 'a real team.'
* A way of working was 'a bit chaotic' but 'got the best out of everyone'.
* Was 'excellent the way it rolled'.
* People put the needs of the University first and there were few personal agendas.
* Everyone in the team was focussed on the need to deliver the Conference and felt considerable responsibility for accomplishing this task.
* The team's common aim led to a 'type of bonding'.

The 'bonding' which developed out of a shared common purpose would have enhanced the team building process. This would be of considerable importance given that the team had not worked together before, nor indeed did they all know each other. Most had not met before.

One respondent observed that the team was trying to work in new ways although it would occasionally slip back into the old OU way of doing things. This he described as doing as little as possible in as long a time as possible. However, he still thought the team had a very effective way of working and observed that it provided a safe environment in which to experiment. The team did try to do things differently and:

'Actually pushed ideas forward to implementation without the usual processes and formalities.'

This meant that the business of meetings was carried out quickly and without formality. It also tried to do things differently by the spontaneous way in which it 'bounced ideas around' and did not impose limits on what was discussed. One way to introduce change is to make small changes especially in routine activities like meetings (Pedler et al 1991) and making small changes was one of the key tenets of New Directions. The Conference Team in breaking the traditional meetings pattern of the University was both modelling the New Directions approach and using an effective and simple way to introduce change as advocated by the learning company model (Pedler et al 1991).

The Survey Team worked in a relaxed and democratic way. Typical comments from the interview data include:

* a 'let's get it done attitude'.
* a 'networked approach' (ie sharing of views and ideas).
* 'a true team with a common purpose'.

The sense of shared purpose emerges very strongly from the evidence and as with the Conference Team this must have assisted with the team building process. This is a key aspect of any self organising group and is discussed in Chapter 9 when the self organising aspects of the teams are explored. Like the other team, the Survey Team too, felt very responsible for accomplishing its task and empowered to carry it out. One respondent summed up the team's way of working thus:

'Open, people encouraged to speak their minds, quite a lot of humour, good tempered.'

Two of the team, both from the administration, and therefore used to working in a more formalised and procedural fashion, were surprised that this way of working should prove so effective. .

At the workshops several of the Survey Team, see Appendix 3. Example 7, wished that they could have been involved in the follow up to the survey. Obviously they felt responsible for not only the delivery of the survey but because of this, for the outcomes and follow up. Also a couple of the team members felt uncomfortable about their roles in the team. These were two members of staff who had expertise in survey work and they had commented on the difficulty this sometimes presented in interview.

An important feature of both teams was the sense of equality. Both teams were unanimous in believing that everyone's contribution was equally valued. (See Appendix 2. Example 4.) This is significant given the mix of different categories and grades of staff in each team. There was the potential in each team for hierarchical patterns to emerge and predominate encouraged by existing roles in the University. This, however, did not happen. Instead the traditional pecking order was replaced by a network of equals.

Most of the Conference Team (7 out of 8) interviewees thought that their team was an informal one although it had been set up at the behest of the PVC, Strategy. (Appendix 1. Example 1.) This is confirmed by the team questionnaire where everyone agrees that it was both informal and temporary. Over half the Survey Team (6 out of 9) thought it was an informal team but 3 members thought it had formal aspects. The team questionnaire, however, produces a slightly different picture. Here a third of the team consider it to be informal and temporary but also 8 out of 9 consider it formal and temporary too. Members of the Survey Team obviously see both formal and informal aspects to

the nature of their team. The fact that the Survey Team had a formal task in support of the Staff Policy Committee, with the Director of Public Relations as a member, because he was responsible for the production of the survey, may have influenced the nature of the team and its perception of itself.

Evidence from the interviews shows that all the Conference Team and most of the Survey Team (6 out of 9) thought that their team was different to the other OU project teams that they usually worked on. They were different because:

* they were informal
* they included a wide cross section of staff.
* they were much more open.
* there was no hierarchy 'not even a relaxed hierarchy.'
* there was no other person who overruled others in the team.
* there was 'no desperation' that arose from people coming along with different agendas.
* everyone shared a common aim, and therefore
* they were purposeful and directed.
* there was a great deal of energy.

One academic thought that there was nothing comparable as most OU teams are too mechanistic. A secretary commented that she was 'bored out of my head' as a member of an OU project team set up to consider home working, as the team was unclear in its objectives, there was too much 'bumf' to read, too much time spent on achieving too little, no enthusiasm, everyone attending because they felt duty bound and the whole group going round in circles never getting anywhere.

Though two staff from academic departments who were Survey Team members, did not consider their team to be so different from an OU course team. Their views were contradicted by an editor who thought that it 'differed dramatically in

the way it worked from an OU course team' because it had no hidden hierarchies.

The Staff Survey Team encountered difficulties not faced by the other team as it had to take into account other traditional University decision making systems. For example, it had to circulate its decisions to three groups / committees. The Director of Public Relations in an attempt to clarify things writes to the Director of the Investors in People Project:

> 'there remains a need to clarify precisely which of the fours groups now involved is actually responsible for overseeing the project, and which simply need to be kept informed.'

The need to consult with other interested parties and to ask for approval posed real dangers in terms of completion of the project on time.

In spite of these difficulties the Staff Survey Team had made excellent progress and a memo from the PVC, Strategy, makes this clear. He writes:

> 'Thanks to the enthusiasm of the New Directions Staff Survey Team the plans for the survey are now well advanced'

The memo concludes by thanking the team for successfully 'implementing a major initiative for the University.'

8.4.7. The Meetings Process

The way the two teams behaved at their meetings and the processes that evolved were explored via interview and the team questionnaire. These provide insights into the way mixed teams of volunteers come together, learn to

work together to achieve their core purpose and how much they were influenced by their organisation and its style. The team meetings were considered by most of the team members, in the team questionnaire, to be unlike most of the OU meetings they attended. (See Appendix 2. Example 4.) However, when interviewed members of the Conference Team thought the meetings were overall very different and but for two dissenting voices so did the Survey Team.

Evidence from the interviews shows that one break with tradition was that neither team had a formal chair or leader. The Conference Team had a 'sort of chair' but she did not exercise the role in the usual way. She was very much one like any member of the team with her own responsibilities, but in her case they included producing lists for discussion and action at the meetings and progress chasing. She had no authority over the team nor any responsibilities other than those she and the team agreed upon.

In the Survey Team the Director of Public Relations was seen as taking a lead yet most thought that he had no real power, authority or influence over the team. He himself thought that he was clearly the budget holder and the manager accountable for the project - but that 'that was about it'. There had been no big disagreements and thus he had not had to test his authority within the group. On one occasion he had found himself in 'a minority of one' and had accepted that he could not do as he wished in this instance. The Staff Survey Progress Report of June 1994 confirms that:

> 'In keeping with New Directions style, no chair has been elected, but Elizabeth Parsons acts as facilitator.

The meetings usually began with refreshments and would commence with 'jolly banter as if a group of friends were meeting'. The meetings of the Conference

Team were described as 'very sort of relaxed and happy but productive'. Neither team had a formal agenda but worked to a 'loose agenda', a very flexible agenda or a 'to do list or 'rough agenda'.

Brainstorming when 'everyone would throw in ideas' was used by both teams to generate ideas and solve issues. All these would be logged on a white board. Both teams focussed on getting things done and deciding what had to be done and who would do it. People would volunteer to carry out various jobs.

The way decisions were taken reflects the overall style of the teams and the team meetings. Evidence from the team questionnaire shows that for the Conference Team decision making was considered to be mainly a spontaneous process whereas for the other team it was overall more a planned than a spontaneous process. Yet it is worth noting that in the interviews no formal processes or procedures were mentioned. There was no strong leader / chair or senior manager who dominated or led the process. Decisions were not delayed nor was the process lengthy or protracted. The reasons for this may lie in the composition of the teams and their style and way of working. Respondents speak of the openness and the listening style of the teams. Further, there were no private or political agendas to disrupt the proceedings.

Evidence from the interviews suggests that when decisions in both teams were made informally they were often by 'unanimous agreement'. One respondent speaks of them being made rather messily - 'the action was the decision'. In other words if someone was willing to carry something out then the team would back them. Another respondent describes decisions as being taken creatively and states:

> 'What seemed to be the best idea always came out on the top of the pile and everybody swung behind it'.

The team members wanted to get on with their project and to make decisions and there was a sense in which decisions had to be reached before the meeting's end. One administrator commented that the Conference Team made decisions whereas in most OU meeting decisions were deferred or given to external consultants. In the Survey Team if a decision was not arrived at by consensus then the Director of PR, would suggest a direction and people would generally agree. Evidence from the team questionnaire confirms that overall decisions were made quickly. (See Appendix 2. Example 4.)

The team's approach to making decisions exemplifies the New Directions approach whereby planning or thinking and taking action are not separated out but brought together in an ongoing process.

Part of the meetings process also included individuals feeding back on their project activities. This information / activity swop ensured that everyone kept up to date with what was happening and had a simple but clear picture of everyone's contribution. The meetings moved quickly with the Survey Team meetings lasting for about 2 hours.

The meetings were 'very refreshing' because they did not follow the usual pattern of OU meetings and 'get bogged down' in OU style committee processes. One secretary described the Survey Team's meeting as:

> 'Very interactive, open, with everyone listening to comments.'

These are the very attributes which are applied to the New Directions programme itself.

8.4.8. Final thoughts

The New Directions teams in their meetings introduced small changes which broke with the established pattern and as Pedler et al (1991) point out this is a good way to introduce change and is one 'of the keys to the Learning Company'

Belbin's work on teams is so well known that it is often used as a guide to ensure that an effective team is put together. But these were teams that were put together at random with no thought for the provision of complementary skills and attributes. Yet they were very successful in carrying out their tasks effectively. Further, both teams were made up of staff drawn from different categories. Some categories were perceived as having more status than others, for instance secretarial staff felt junior to administrators and academics. Academics and administrators come from very different cultures and the relationship is often uneasy. Further there were differences of seniority within the grades themselves. On the face of it a disparate mix of staff with many hurdles to overcome if they were to work together effectively. But in reality they did have things in common which would help to create the team. They had all responded to the call to support New Directions by joining their respective team and were very motivated and committed to their project's purpose and as Dale (1994) suggests a group of people in an organisation who share a common purpose can effectively work together as a group of co-learners.

Given that the two teams were made up without any consideration of the skills, abilities and experience needed to carry out their tasks, what else contributed to their success? There is considerable evidence that new ideas were stimulated by the way the team worked together, that the team members supported and encouraged each other and that there was considerable discussion and debate. These are all attributes of a group of co-learners (Dale 1994). Further evidence of co-learning is provided by one of the clerical staff who observed that:

'everyone developed the skills needed during the life of the team.'

Many of the team members or 'activists' as discussed earlier in this chapter described rich learning experiences resulting from their participation in New Directions. Given their evidence and Dale's views then their participation in the teams played a major role in providing a fertile environment for learning to take place. As Dale observes:

> 'They are members of a professional community of co-learners, who help each other and provide support when the going gets tough. Collectively, they act as reflective practitioners, complementing each other, moving between action and thought as appropriate.'

Several interviewees spoke of how the team members kept in touch and still formed part of a supportive network of colleagues long after the lifetime of the team.

Both teams functioned effectively without a dominant chair / leader. The evidence suggests that this traditional model of guidance was replaced by a collective or shared leadership approach which arose out of the open, enabling style of the teams and their strong sense of shared purpose. Initially I had acted as a facilitator or guide in each team but this role diminished as the teams grew together. This was viewed by all the team members as making a contribution to the effectiveness of the team.

Given the opportunity to sum up their team in one sentence what did the members of the teams highlight or emphasize and what picture emerges? There are no negative descriptions or nuances given in the members description of their teams. What emerges is that each was very effective for its

purpose and that people were focussed and enthusiastic about that shared purpose.

The Conference Team was described by one regional academic as:

> 'A disparate group of people, united in a common purpose, who gelled as a highly effective organising committee whilst having fun.'

A secretarial and clerical member of the team thought it was:

> 'A cohesive, energetic group of volunteers who believed in the idea of a Conference where all the staff could address issues of interest and concern - and make it happen.'

The Staff Survey Team was described by one manager as:

> 'A well motivated, harmonious, positive team who actually set out to get something done.'

A senior secretary described it as a

> 'An enthusiastic and focussed team.'

As explained earlier, the self organising aspects of the two teams are discussed in detail in Chapter 9 which also builds upon facets of the teams explored in this chapter.

8.5. New Directions as an Organisational Change Process - Conclusion

The first four sections of this chapter have discussed and described in some detail some of the implications and outcomes of the New Directions organisational change process at the Open University as evidenced by data from the case study. This section summarises and reviews the evidence and conclusions drawn in this chapter and further considers them in the light of strategic change models discussed in Chapter 4 and Stacey's 9 point complexity theory of organisation discussed in Chapter 5.

The New Directions change process was just one part of a significant institutional change process that the University began during 1993 /4. The University sought to introduce changes via the actions required in its strategic action plan, *Plans for Change* and one of the key ways it did so was via a more rigorous University wide planning process. This approach was highly 'deliberate' (Mintzberg and Waters 1989) and required detailed plans for action at departmental level which linked to *Plans for Change* and the budgetary planning requirements. This approach to strategy with its heavy emphasis on information gathering and analysis accords with the mechanistic aspects of the University and traditional notions of change as discussed in Chapter 4.

The New Directions process was a very different change driver. It was essentially a spontaneous, participative process that developed out of a consultation exercise on the University's strategic action plans. It was influenced by several modes of strategic change especially some of the newer interpretations of change and innovative practice, particularly the learning organisation. It was also inspired and influenced by ideas drawn from the new sciences and these are specifically discussed in the next chapter.

The early workshops were planned but the programme then developed into a

much more complex range of spontaneously conceived activities. *Plans for Change* made clear the University's intentions as regards the involvement of all staff in making its plans a reality. Thus the programme began with a deliberate strategic approach (Mintzberg and Waters 1989). Aspects of the planned, highly deliberate strategy are usually found in organisations that spend considerable time considering their plans and then committing themselves to actions based on their plans. This kind of approach to planning and controlling the organisational environment needed to ensure their delivery particularly suits a stable bureaucracy. Thus New Directions had its origins in the bureaucratic, traditional side of the University. But as the workshops unfolded so the strategy became less imposed, more emergent and an 'unintended order' (Mintzberg and Waters 1989) emerged that echoed notions of order found in self organising systems. The role of self organisation in the programme is discussed further in Chapter 9.

The New Directions programme reflected many of the patterns which Quinn (1989) considered necessary for successful change initiatives. These included the development of informal networks, the testing of ideas, and the spreading of awareness and support for change ideas. But the programme did not pause to solidify and did not approach things in a logical, step by step fashion. Thus it did not match Quinn's logical incrementalism.

Mintzberg and Waters (1989), Quinn (1989) and Eccles (1993) all describe approaches that are based on a top down approach to strategic change and whatever the origins of the New Directions programme it became perceived by many of those involved as an organisational change process that was fuelled by grass roots enthusiasm and participation, such that some staff called it a 'people's programme'. Thus it developed in a way quite unlike those of the standard models of strategic change which the University adopted at the time.

As discussed earlier the University sought to introduce changes by improving its people management systems. It did so by setting up an IIP project and requiring all departments to strive to meet the IIP standard. Though this initiative sought to address the 'people' issues in the OU, in the view of those interviewed, it did so in such a mechanistic way that it alienated many staff and failed to achieve its aims.

Thus New Directions was a change process that was very different from other major change processes introduced over the same time period. Also although it may have had its origins in a view of organisational strategy and change that had mechanistic overtones it soon developed into something radically different. One way in which it was different is that it was an emergent real world strategy.

Mintzberg and Waters (1989) point out that an emergent strategy is a real world approach that enables strategic learning to take place. Further it is possible to develop a learning approach to strategy (Pedler et al 1991) whereby strategic plans are developed and revised as part of a structured learning process. The New Directions programme did not deliberately set out to establish a structured learning process but rather learning emerged out of a real world laboratory. The use of feedback loops as part of the process also led to continuous evaluation and reshaping of strategic visions in a way akin to Pedler et al's (1991) model. The use of feedback using multiple methods and the responsive nature of the programme enabled learning to flow from individuals and groups and around parts of the organisation in a way that contributed to continuous organisational learning (Garratt 1995). Most importantly there was genuine listening and feedback from the organisers of the programme, the PVC, Strategy and the New Directions activists.

Leonard-Barton (1994) states that a learning environment is based on egalitarianism and the assumption that everyone can contribute to the

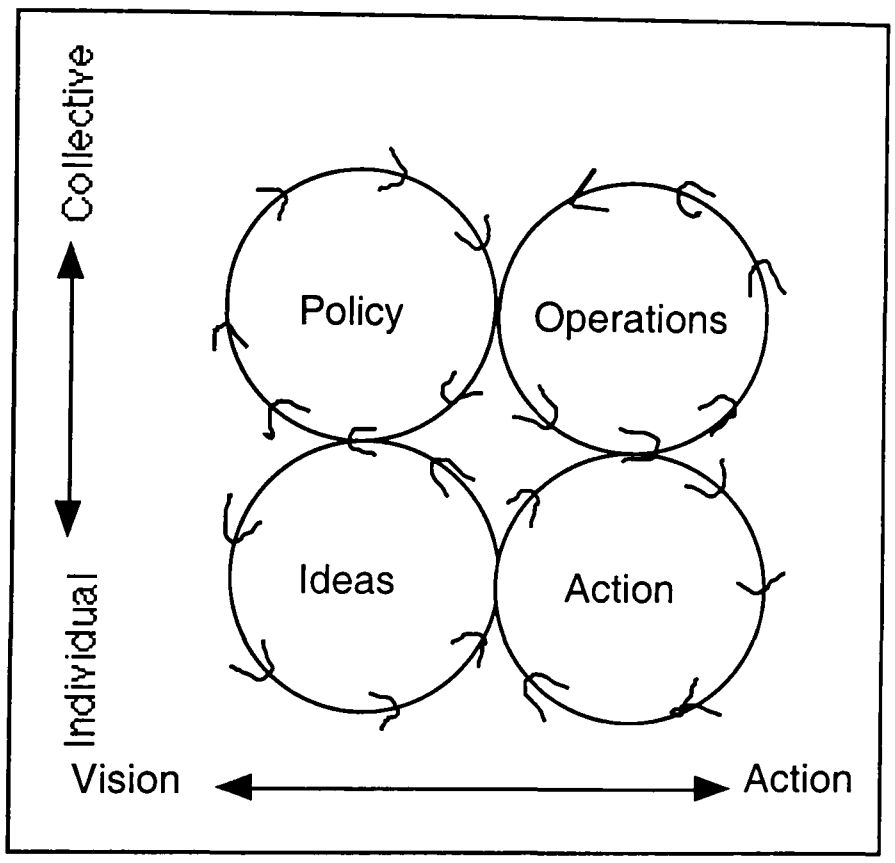
organisation. An egalitarian belief that all members of staff can contribute to changing the University is a basic tenet of New Directions. Leonard-Barton's learning factory sought to boost the egos of its employees by ensuring that all employees had the same rights and conditions of employment and an egalitarian system of performance rewards and incentives. The staff at the New Directions Conference identified the needs for such employment conditions as prerequisites for change thus unconsciously concurring with the approaches at the learning factory.

Involving people in strategic action planning and giving them a voice in their own future can create powerful positive emotions. The programme boosted the confidence and self esteem of those involved such that they were able to make their own changes. This suggests that by creating feelings of excitement, optimism and a 'buzz' a change intervention can stimulate learning and energise individuals and groups of people to do things differently. This is to act directly and appeal positively to the emotions of people rather than to ignore how people will react to strategic planning and then deal with the emotional fall-out when it arises. Such an approach recognises the importance of the emotions as well as the intellect and incorporating them into the change process, so rejecting the Cartesian - mechanistic approach described in Chapter 3.

Pedler et al (1991) recognise that it is people who provide the energy in an organisation and they explore the notion of energy in the learning organisation or company as a series of flows. A representation of their energy flow model, Figure 8.7., illustrates how in a learning culture the flow of ideas and action between the individual and the collective creates an energy for development, learning and thus change. It is a model which the New Directions programme with its flow of ideas, information, feedback and individual and collective action at all levels maps onto.

Pedler et al (1991) ask where does one start such an energy flow and where would be the best place to start one? The New Directions programme suggests that a responsive, participative change intervention that involves all staff in strategic planning in a way that stimulates and encourages innovative thinking and individual action, supported by a series of multi dimensional feedback

Figure 8.7. Energy Flow Model adapted from Pedler et al (1991).



loops, is one way to make an effective start.

The visioning style of strategic management in vogue in the 1980s encouraged many organisations to make changes, although all too often only cosmetic ones (Moncrief and Smallwood 1996). Thus the pattern of activity at the workshops with their focus on visioning the future may appear to be drawing on a poor model of strategic change process. Yet as Pedler et al (1991) point out, why should people change unless they have a new vision before them that will not become a reality without changes being made and learning taking place? Further, a picture of a desired future is essential for any learning company

(Pedler et al). Also the gap between the vision and reality can lead to creative tension and energy for change (Senge 1992, 1994). This was an important factor in creating some of the enthusiasm for change amongst some of the programme's participants and is discussed further in Chapter 10.

There is other evidence to suggest that the New Directions programme manifested many aspects of the learning organisation approach, as follows:

* It enabled staff to participate and contribute to strategic decision making (Pedler et al 1991).
* It provided a safe environment for people to take risks (Dale 1994).
* It facilitated learning from experimentation and experience (Pedler et al 1991).
* It encouraged the notion that mistakes are allowed and recognised as opportunities for learning (Handy 1990, Pedler et al 1991).
* It sought to reframe the world and the University's role in it (Handy 1990).
* It created and involved not only first order change or simple learning but also second order change and complex learning (Dale 1994).

First order change is a feature of the bureaucracy (Dale 1994) but not second order change. This is because in Morgan's (1986) view bureaucratic organisations tend to operate in a way that actually impedes second order change or double-loop learning. But the New Directions programme was able to provide an environment which overcame many of the factors which hindered the development of deep level learning. It encouraged participants to think for themselves, to challenge long accepted norms and facilitated the development of relationships across departmental boundaries. Participants developed a wider vision of the institution and their role within it. The New Directions programme demonstrates how an organisation such as a bureaucracy can facilitate the development of double-loop learning as Morgan (1986) suggests

by:

* encouraging an open approach to the discussion of strategic change.
* by facilitating the exploration of issues from many perspectives.
* by recognising that people can make mistakes and can learn from them.
* by encouraging a 'bottom up' approach to the strategic planning process.

Further, it created teams with self organising aspects which it so empowered that they were able to operate as shadow systems outside the normal procedural constraints of the University. Without this separation from the formal structure and processes the teams would have been unable to operate as they did. Chapter 9 investigates further the nature of the self organising teams and New Directions as a shadow system.

New Directions demonstrates that one of the advantages of using a responsive, participative and open approach to organisational change is that it facilitates the flow of change through learning. Complex, second order (Dale 1994), double-loop (Morgan 1986) or generative (Senge 1992, 1994) learning took place in many forms. Many individual participants gathered new information and new understandings of their organisation, and their role and the roles of others. This learning led to new perceptions and these in turn created fresh perceptions of context in which people thought and acted. For some individuals learning had created new realities. These stimulated new attitudes and behaviours and engendered deep seated changes within individuals. Some individual participants, especially those active in the programme, also experimented with ideas and intellectual and behavioural challenges and learnt how to think and behave differently. Sometimes behaviours changed and mindsets shifted. Thus the programme by encouraging, facilitating and enabling learning in all its many forms created a dynamic for change amongst those involved.

Learning that is more than surface or first order learning changes an organisation (Dale 1994, Merry 1995, Morgan 1993, Pedler et al 1991, Senge 1992, 1994) and thus one way to consider how much an organisation has changed or how successful a change intervention has been would be to consider the learning that has taken place. The evidence indicates that many types of learning including second order or double-loop learning took place as a result of the New Directions programme and therefore individual and group changes took place. Other evidence, such as actions taken and shifts in thinking and behaviours which respondents identified confirms this. There is considerable evidence that apparent learning took place and one may safely assume that unapparent learning also took place. This needs to be considered when reviewing the amount of overall learning.

Further evidence of change brought about as a result of the New Directions programme is provided by consideration of the traditional markers of change such as discrete events or the progression of particular issues. The Staff Survey, the series of communication workshops, and the progress on issues raised at the Conference are some of the markers of change.

The 1994 Conference was a landmark event in the New Directions change process and there is considerable evidence that participants believe it encouraged a number of recognisably significant changes. The Conference involved a thin but rich slice of the staff of the University and thus a valuable insight into the issues and themes that needed to be addressed if the University was to achieve its strategic goals. Further, as I have suggested earlier in this chapter, the Conference played a key role in the development and emergence of an informal 'democratic' strategy for change. This approach to strategy could be considered the result of an 'intended' or 'deliberate' strategy (Mintzberg and Waters 1989) that would paradoxically intentionally aim to let go in such a way

that strategic approaches emerged in a democratic and self organising fashion.

The Conference and the workshops showed that individuals and groups of staff in an organisation value having an opportunity to express their thoughts and feelings in a constructive, responsive forum where they know they will be listened to by senior management. This is particularly important in an organisation like the Open University that has a very hierarchical structure. Power is believed to reside at the top and therefore people need access to the top if they are to consider themselves and their views valued in any way. This opportunity can lead to real and often unexpected benefits. Creating the opportunity for people to do this creates an enabling process allowing people to contribute to the strategic life of an organisation. Some of the participants became very enthusiastic, supportive, and very positive. Here was an energising process and not a draining one. If organisations want to change they need a fund of positive energies to move them. Traditional responses to change often involve some negative responses that block, impede, subvert or avoid. There is no guarantee that such enabling and facilitative processes would do away with negative responses, that is most unlikely. However, they could help create a fund of positive responses that could move things forward. As I have already discussed one of the positive outcomes of such a process is the richness of both the predicted and unpredicted learning that takes place and the impact this may have on the change process.

The New Directions experience suggests that organisations consider the use of teams of enthusiastic volunteers from all groups and categories of staff to carry out projects as part of an ongoing change process. Morgan (1993) suggests working with enthusiasts and Dale (1994) sees many advantages in working in groups. The work on the projects themselves will bring in changes and the volunteers in the teams will by their interactions and learning introduce more differences. The setting up of such teams offers possibilities to those staff who

have the interest and energy to participate. This may ensure that energies remain positive and do not become frustrated and negative. In other words, a change process should find ways to specifically enable people to act in a tangible way, to support the process rather than letting them sit on the sidelines as onlookers.

There are several strong processes at work which distinguish a New Directions type of team and make it effective. Firstly, the differences between individuals and their usual roles create a rich interactive dynamic. This stimulates individuals who are already energised and motivated by the change process and the appeal of their particular project. Secondly, there is a strong sense of shared commitment and shared purpose. This in turn feeds into the other dynamics and gives further clarity of purpose. Also, each team itself creates a rich source of learning opportunities. Individuals learn from each other deliberately and by chance and to ensure that their team achieves its purpose they will acquire any necessary knowledge, and consciously and unconsciously learn and develop new skills and attributes.

A change process like New Directions raises the temperature of an organisation by heating up the tensions between the old way of doing things and the discovery of new ways. As Gleick (1996) points out living organisms both detest and yet at the same time seek for change. New tensions arise within individuals as was witnessed by the response of some of the technical staff and some senior managers. Fear, anxiety and concerns are at one end of the spectrum of feelings and reactions to change, and enthusiasm and optimism are at the other. In this respect the programme created emotional responses that are found whenever the existing equilibrium is disturbed. In the case of New Directions, however, the reaction of the majority of those who participated in the research was positive, though it was perceived that the reaction was more mixed from those outside it the programme.

If a change process is to bring about important differences in an organisation it should consider involving all its staff in a series of energising dynamics to encourage and facilitate experimentation, creativity and innovative thinking and behaviours entwined with a rich variety of learning experiences. Further, it should expose its staff to issues related to changes in the external environment and to the challenges of handling them effectively. As the outputs from the workshops demonstrated a rich source of ideas and insights to help deal with these already exists within most organisations.

The way the New Directions programme did things mirrored both its own values and beliefs but also the long held espoused values and beliefs of the University. If people are attracted to an organisation because of its espoused values then they are likely to respond to those values when they come to life in a change intervention. Thus although New Directions appeared to many of those outside it to have been dangerously challenging the status quo, which it was, it was also, paradoxically, in fact, supporting the universal values and beliefs of the institution. Certainly, for some of those involved in the programme this mirroring of the original values and beliefs of the University added to its appeal.

The University prides itself on being a democratic institution yet the evidence shows that some New Directions participants, particularly the junior levels of staff and those belonging to the secretarial, clerical, technical and craft categories, felt that the democratic processes passed them by. Yet because it espoused democracy then the University created an environment which valued the notion. This may have contributed to the environment that enabled the programme to flourish. It is important, therefore, that in considering a change process of the New Directions kind to consider how well it will resonate with existing values and the historical and cultural environment of the organisation. Again the OU when it was set up challenged the existing mould of higher

education and, therefore, the more challenging and unusual features of the programme resonated well with the recollections of those involved who had valued its mould breaking approaches.

The New Directions programme provided many of the approaches and activities needed for 'imaginization' or the art of creative management (Morgan 1999). They are:

* improving abilities to see and understand situations in a novel way.
* finding new images to describe an organisation.
* the creation of shared understandings.
* personal empowerment.
* developing continuous capacities for self organisation.

In a New Directions style change process there are many people involved in considering the future of the organisation. Thus the total cumulative knowledge, experience and ingenuity involved in dealing with the unpredictable is considerably greater than that available when using more traditional and less participative interventions.

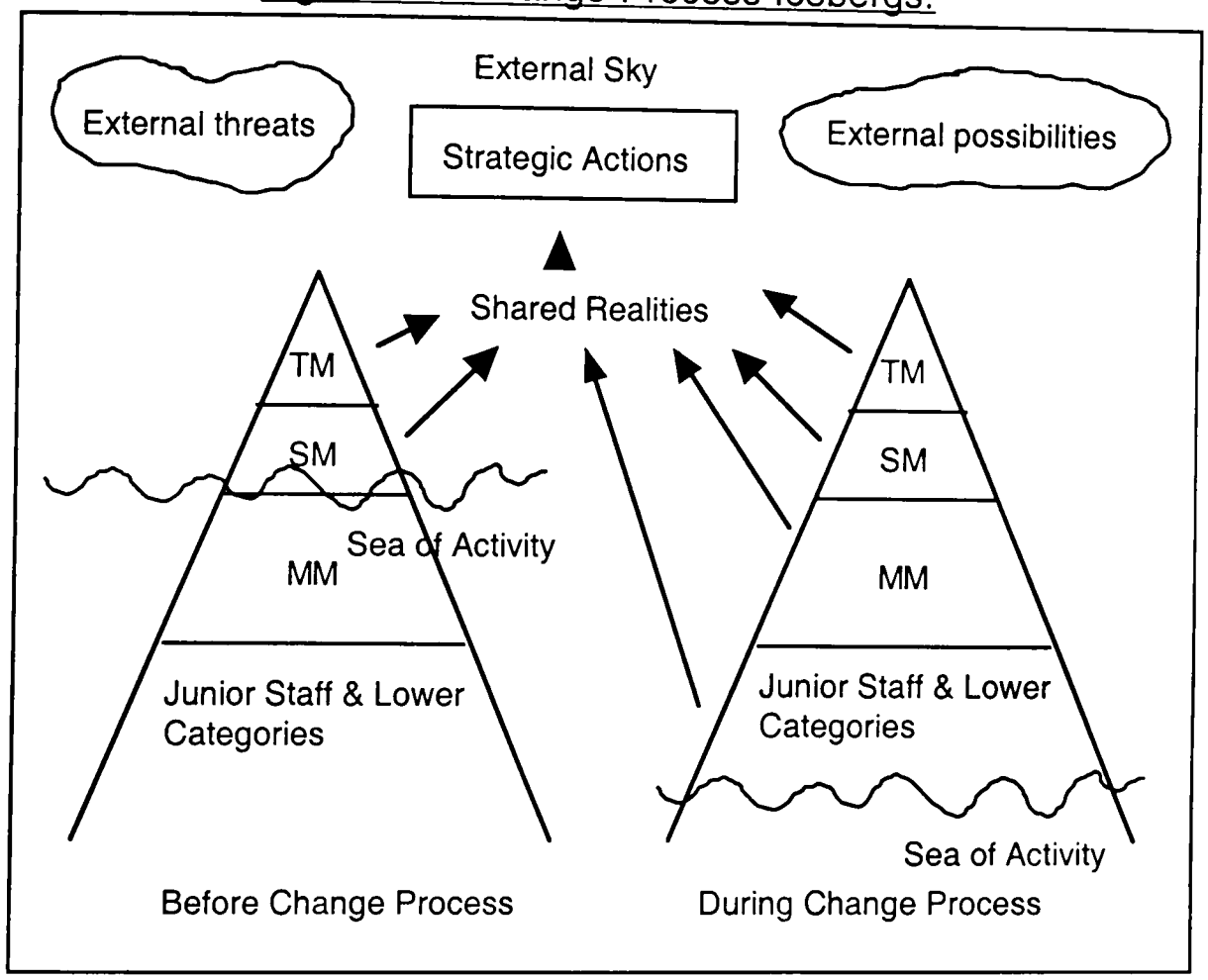
In, Figure 8.8. over the page, I have used icebergs as a metaphor of how a traditional, hierarchical organisation may change while it is undergoing a New Directions style change process.

The iceberg represents the staff layers in the organisation. TM equals top management; SM, senior management and MM, middle management. As the iceberg on the left shows most of the time most of the people in an organisation are submerged under a sea of everyday activity. In other words they are doing their jobs and making things happen. They are not in a position to focus on and to study the external sky around the organisation. Some may get glimpses of what is happening but for most it is not their prime concern. It is left to the top

managers and some of the senior managers to watch the external sky and to consider how best to react and respond to its ever changing nature. They are often well aware that most of the staff do not share their concerns nor appreciate the sometimes difficult nature of their position.

But as the iceberg on the right shows, while an organisation undergoes a widespread New Directions style change process then the sea of activity

Figure 8.8. Change Process Icebergs.



recedes from time to time and all levels of staff have an opportunity to consider the external sky and how best to respond to it. More staff are able to understand better the challenges faced by the managers on the top of the iceberg. Some of these realities become shared and with this better understanding. This is particularly important in times of change (Morgan 1993). There is some sharing of response as the layers of staff in the iceberg share possibilities, explore future visions and consider appropriate actions. Some sense of shared purpose emerges. This is enhanced as people learn together. A whole new source of

ideas, insights, energies and collective wisdom is now deciding how best to work with the 'weather' of the external environment to ensure the survival of the organisation.

Stacey (1996) has developed a 9 point theory of organisation based on complexity. How well did the New Directions change process and its organisational context, the Open University, map onto Stacey's view? Figure 8.9. on the next page considers this and it shows in summary some evidence to support aspects of 7 points of this view of organisation. The case study did not provide any evidence for points 5 and 6 which describe the dynamics of the successful organisation because it did not consider the University as a whole, nor examine cycles and trends across the institution.

As the evidence in this chapter shows, the New Directions programme was a complex change process in which groups of active enthusiasts became heavily involved and played a key role in creating pockets of change. Aspects of the programme mapped clearly onto accepted models of change and learning whereas other facets fitted uneasily if not at all. It is possible to consider the programme as representative of an approach that seeks to include what it perceives as the most useful innovative thinking, along with accepted models of strategic change and an infusion of ideas from the new sciences. All this was taking place within a complex, complicated organisation dominated by a hierarchical structure and bureaucratic tradition, albeit with pockets of innovation and self organisation. Thus, I would suggest, the New Directions programme models a way forward that brings together past, present and future notions of organisational change, a transitional approach. This notion is explored further in Chapter 10.

Figure 8.9. Stacey's (1996) 9 Point Complexity Theory of Organisation and New Directions and the OU

Stacey's 9 Points	New Directions & the OU
1. All people, organisations and environments are 'webs of nonlinear feedback loops' that connect to each other by 'webs of nonlinear feedback loops'.	ND demonstrates how it is possible to use these webs to create positive feedback loops. See Response Dynamic, 8.2.1. & Figure 8.4.
2. These nonlinear feedback systems are able to operate in 'states of stable and unstable equilibrium, or in the borders between these states, that is far-from-equilibrium, in bounded stability at the edge of chaos'.	OU has many traditional or stable features (ie. close to equilibrium)& also highly innovative & experimental features which pull towards instability. Aspects of ND helped pull part of OU towards edge of chaos. See Chapter 9.
3. 'All organisations are paradoxes.' They are pulled towards stability by control processes, human needs for security and stability, and adaption to the environment. But they are also pulled to the opposite extreme of instability by the pull of organisational divisions and decentralisation, human needs for excitement and innovation, and remoteness from the environment.	Response to ND & the Conference support this. Some individuals were excited by the prospect of changes & others were afraid. Some wanted things to be different, others desired the status quo. Some strategic processes eg. Unit Planning pulled towards stability & control. ND's spontaneous processes pulled against these.
4. If an organisation is pulled into stability it will fail because it will ossify and be unable to easily change itself, but if it is pulled into instability it will disintegrate. Success lies in sustaining an organisation in the borders between stability and instability.'	The University's staff recognised that the University had to change to survive as it was based on a traditional model of organisation, with a strong bureaucratic subculture best suited to stable times. But the world around was changing fast. *Plans for Change* & ND sought to address this need & to 'loosen up' the OU.
5. 'The dynamics of the successful organisation are.. those of irregular cycles and discontinuous trends, falling within qualitative patterns, fuzzy but recognisable categories taking the form of archetypes and templates.'	
6. The successful organisation because of its internal dynamics faces 'completely unknowable specific futures.'	
7. Agents (people) within the system (organisation) are unable to control the long term future, they cannot use 'specific frameworks to make it successful', they are unable to apply traditional, analytical, long term planning methods and controls to the long term future only to the short term.	The spontaneous development of ND from a 'deliberate' strategy to an 'emergent' or chiefly self organising process could not have been predicted, nor that a 6 months programme would run for 4 years. IIP set up in a traditional planning framework did not succeed across the whole institution.
8. 'Long term development is a spontaneously self-organising process from which new strategic directions may emerge. Spontaneous self-organisation is political interaction and learning in groups. Managers have to use reasoning by analogy'.	The programme developed spontaneously and supported new themes as they emerged. See the Democratic Strategic Action Plan. Evidence of learning in groups, 8.2.9. and 8.3.7.
9. This is how 'managers create and discover their environments and the long term future of their organisations.	See 8 above.

CHAPTER 9

USING IDEAS FROM CHAOS AND COMPLEXITY TO CHANGE THE OPEN UNIVERSITY

9.1. Introduction

Chapter 8 investigated the New Directions programme at the Open University as an organisational change process and assessed its impact on the institution. It also considered its relationship to some of the traditional models of strategic change, and some of the newer and more innovative approaches to managing and achieving organisational change, especially the learning organisation approach, and aspects of the new sciences, with particular reference to Stacey's 9 point complexity theory of organisation. This chapter builds upon the data discussed in Chapter 8 and considers the New Directions programme wholly from a new sciences perspective. It too draws upon data derived from interviews, two questionnaires and secondary data. Overall there is a significant convergence of view from all sources. All relevant data is analysed and particular consideration given to any divergence of view or any contradictory evidence. The first 6 sections examine the programme for evidence of the use of, or influence of, any specific ideas, such as the Butterfly Effect and emergence. *Self organisation* emerges as a major theme from the evidence and is the major focus of two of these sections. The penultimate section considers how well ideas from the new sciences were explicitly understood by some of the key players.

9.2. Understandings of Change and the Butterfly Effect

All of those interviewed thought that most people did or probably did view change in a cause and effect way. In other words, this suggests prevalence of the view that change could be managed and made to happen in an orderly fashion by the application of certain principles. This accords with Durcan et al's (1993) model of the mechanistic approach to change and reflects the traditional, bureaucratic aspects of the University.

Over half of all the respondents completing the scaled questionnaire (64%) thought that top level planning was the way to bring about effective change throughout an organisation. 7% of activists disagreed. Overall this again suggests that the mechanistic approach to change which views the process as a series of logical, planned steps devised to achieve a predictable future (Durcan et al 1993) prevails at the University. But a significant majority (86%) thought that this would not come about without the involvement of everyone concerned. The picture that emerges is of an organisation where most of the staff expect top management to devise plans for the long term future as part of a deliberate strategy (Mintzberg and Waters 1989) but at the same time expect to be involved in any changes that may affect them. This hints at a more radical / dynamic approach to change (Durcan et al 1993) where the process is open and less linear.

Further evidence of fresher approaches to organisational change with understanding of how small perturbations can, over time, lead to major change emerges from interviews and the scaled questionnaire. A substantial majority who completed the questionnaire (86%) thought that small changes can result in major changes over time and that this approach often proves an effective way of introducing changes in organisations (Handy 1990). One of the New Directions 'principles' described in the leaflet *What is New Directions all about?* states:

> 'We will achieve far more if 100 of us devote 1% of our time and energy to changing what we do, than if one person devotes 100%'

This recognises the importance of the individual and how small changes by an individual can make a major difference. Creative individuals in particular can make a significant impact on an organisation (Wheatley 1994). This notion was taken on board by many interviewees one of whom thought that if 'everyone makes a 1% effort' then it has 'a dramatic effect on the change process'.

This view was supported by evidence from the scaled questionnaire. 82% thought that given the opportunity individuals can make a difference to the organisation's future. As one might expect the activists (94%) were more strongly in agreement with this view than the others (64%). Thus though most people thought change was brought about by traditional methods then at the same time they also believed that the individual, given the opportunity, can also make a difference to the future of the organisation. This means that a minor perturbation, or an individual doing or thinking differently, is amplified by the interaction and support of others, and eventually this emerges into a major difference (Cooksey and Gates 1995, Macnamara 1993, Wheatley 1994). This is the Butterfly Effect principle at work in an organisation.

When one looks at the New Directions programme then there are examples of the Butterfly Effect at work. One key activist interviewed pointed out that the workshops themselves provided evidence of the difference small changes can make over time. She described how the original workshops had led to the 'themed' workshops which had themselves influenced policy developments, and further workshops, for example, on international developments and new technology. See Figure 9.1. The 1994 Conference, too, was a one day, one off event that led to a series of unexpected events and influences. As the evidence in Chapter 8 shows, it affected a number of individuals personally and led to

new learning and new behaviours. The reaction of some of the staff to the workshops led by external speakers shows how exposure to events in other organisations can also lead to unexpected outcomes. All these small changes were amplified by non linear feedback systems which individuals and groups created as they interacted with colleagues (Stacey 1992, Wheatley 1994). Thus the perturbations which arose from the Conference joined with those that arose from the workshops, from the briefings, from publications, from coverage in *Open House* and from conversations and emails to create a complex new dynamic. This maps onto Stacey's (1996) complexity theory of organisation whereby people and organisations create webs of non linear feedback loops, as discussed in Chapter 8 and summarised in Figure 8.9. This influenced and encouraged new thinking and new policy developments and as the Institute for Employment study reported led over a period of time to 'real changes' in the institution.

The data on attitudes to change suggested that overall most people who participated in New Directions had mixed views on change. On one hand they consider that the traditional approach, described by Durcan et al (1993) as mechanistic and 'managing' is desirable but at the same time they also favour a more individual, creative approach which draws on some of the more radical and dynamic views of change (Durcan et al 1993). This in many ways reflects the complexity of the University with its traditional bureaucratic aspects, its mould breaking, radical past, its espoused values of equality and its innovative and creative teaching approaches.

9.3. Self Organisation at Work, Fractals and Shadow Systems

This section discuses the overall pattern and impact of the programme and the evidence of any self organising principles at work. It also refers to fractals and

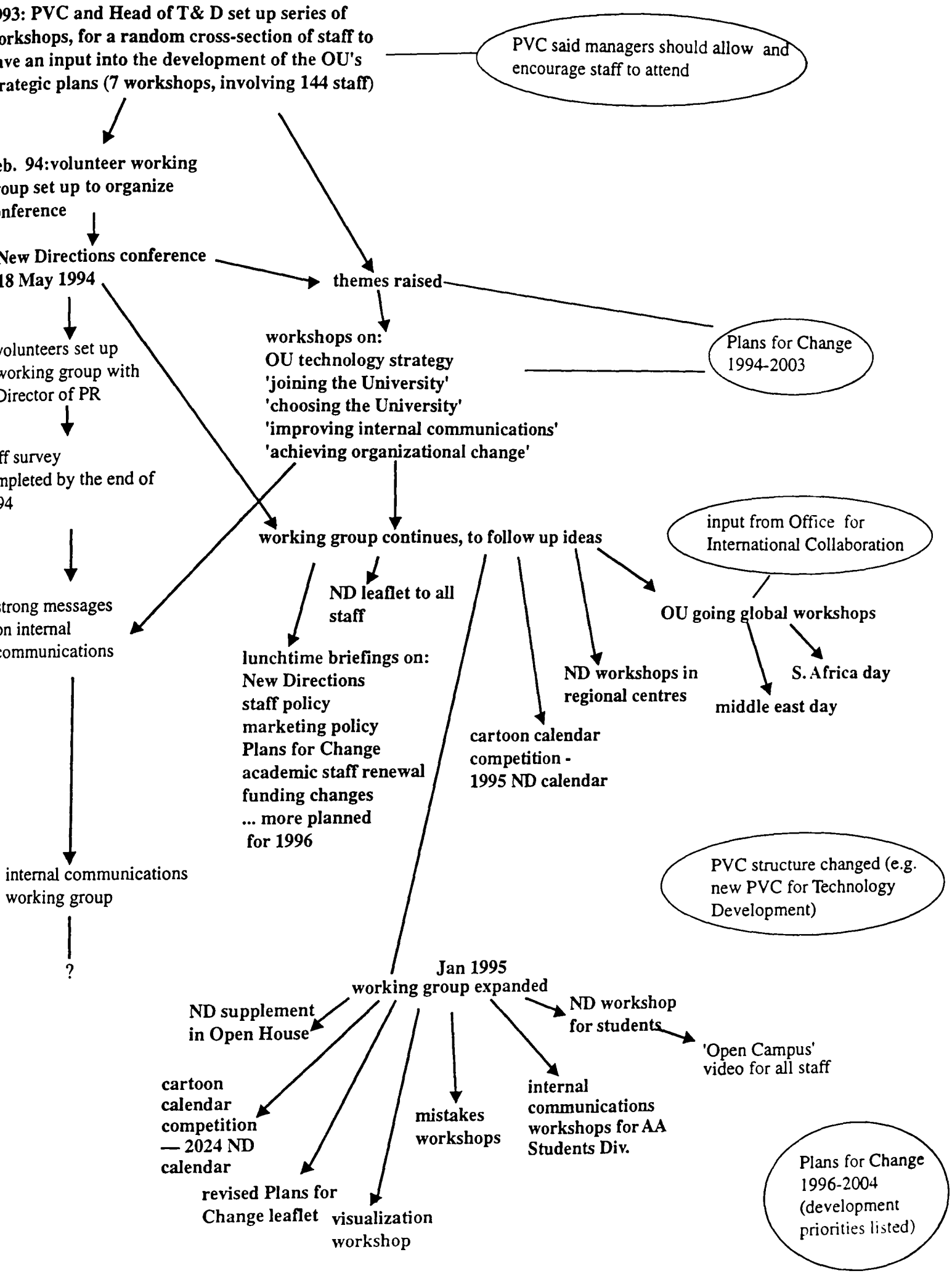
self organising shadow systems as features of the overall programme.

As described in Chapter 8, the New Directions programme began as a set of consultative workshops for all the staff, but over time it developed into an innovative programme of activities continuing for some 4 years. In the autumn of 1996 Carol Russell, 'chair' of the 1994 Conference Team, produced a map (Figure 9.1. over leaf) showing the origins of New Directions in 1993, how it developed in 1994 and 1995, the themes that it raised and the links it had with a host of internal strategic activities. The map is a personal snapshot of how the programme's history looked at that time through the eyes of a key activist, and it shows in diagrammatic form how she believed the programme evolved.

The map shows clearly how the success of the first workshops led to further workshops the following year which picked up on the themes emerging from year one and the 1994 Conference. The programme was not planned, coordinated or controlled in a linear way in accordance with the rational view of management theory (Morgan 1993). The programme, or rather those who organised it, took an opportunistic approach to change, building on ideas, actions and events in a spontaneous self organising way (Morgan 1993).

If one looks again at the map one sees waves of activities spreading across the University and the emergence of the volunteer groups and the ripples of activity that they then created. None of this was pre planned. Once the work of the 1994 Conference Team was over the members of the team took it upon themselves to follow up on the Conference issues and ideas and support new activities. Then after the staff survey work was completed the 1995 New Directions Action Group was created by a group of enthusiasts. These groups arose as a natural response to the events around them and organised themselves into informal networks. This unplanned response to events

Figure 9.1: Map of New Directions Activities - Autumn 1996 - by Carol Russell.



early 1996, working group started planning major event for autumn 1996 — an open conference to review New Directions

A map of New Directions activities (specifically New Directions events shown in bold type)

whereby individuals formed groups around specific issues and interests and worked to deal with them lies at the heart of self organisation in organisations (Stacey 1996). The key role played by the New Directions teams in energising and organising the process was discussed in Chapter 8 and their self organising aspects are discussed in detail in section 4 in this chapter.

As discussed in Chapter 8, the programme began as essentially a 'deliberate' strategy and became primarily a rather 'emergent' or 'consensus' strategy (Mintzberg and Waters 1989). A 'consensus' strategy is one which is driven not by top management but evolves through the 'results of a host of individual actions'. Further, 'an emergent strategy means, not chaos, but in essence unintended order' (Mintzberg and Waters 1989). Thus the highly 'emergent' or 'consensus' strategy with its notions of many individual actions and unintentional order resonates powerfully with notions of self organising systems.

There are many parallels between the activists in the New Directions programme and Morgan's (1993) self organising termite colony, as discussed in Chapter 5. For example, they did not follow any predetermined plans but responded to emerging situations and events in a spontaneous way. Also they may not have followed a strategic plan but they had a strong sense of what they were trying to achieve, that is, to change the way the OU did things, which informed and guided their actions.

Other evidence on the self organising aspects of New Directions is provided by the interviews. Spontaneity is one of the key attributes of self organising systems and the majority of respondents agreed that the New Directions programme had indeed developed spontaneously. One stated:

> 'Spontaneous is a good word to use for New Directions."

Interviewees stated this was because the programme had responded to ideas / events / issues as they arose from the workshops or from the staff. 'Somehow they picked up on the vibes'. Further, the programme was spontaneous because 'it listened to what people were saying and because it was responsive'. There was some difference of opinion as to whether the programme was initially spontaneous or whether it evolved into something spontaneous.

Further evidence of the spontaneous way the programme developed is provided by an article describing how the workshop for students came about. One of the Action Group writes (July 1995):

> 'At several New Directions events last year, staff had suggested we should also be asking students what kind of OU they'd like to see in the future. So in the usual New Directions fashion, we decided to get some students together and ask them.'

This spontaneous, opportunistic, 'let's have a go', response to ideas and suggestions from the staff is a hall mark of the activists and the programme and accords with Morgan's (1993) description of a self organising termite colony approach.

One senior manager, thought that the programme was both planned and spontaneous, in that the content was probably put together spontaneously but the structure was not. He described it as 'structured spontaneity'. He added that it became 'more freewheeling' as it went on, yet there was still 'a structure within it.. a self imposed hierarchy'. In other words, order emerges in self organised systems without the need for controlling mechanisms. This is an example of Kauffman's (1996) 'order for free' whereby self organising systems create their own internal patterns of order.

Evidence that the programme had not evolved in any pre-planned way is provided by the interviews. Most interviewees thought that there was no clear set of objectives when New Directions began but that they emerged over time. One respondent thought that these were 'directions' rather than 'objectives' and cited as an example the working for achievement of harmonisation of conditions. This suggests that the future was not tightly prescribed but was defined by visions rather than pre determined objectives. This supports Stacey's (1996) 9 point complexity theory of organisations whereby strategic directions may emerge spontaneously from a self organising process. See Figure 8.9 in Chapter 8. A number thought that there had been objectives when the programme began but that new ones had emerged as it progressed. The programme had set out to introduce changes into the University but it would 'adjust its framework by what it heard in the workshops' and change its focus or introduce new ideas or approaches. One respondent thought:

> 'New Directions was a bit like a ball bouncing in and looking at new themes'

The New Directions programme had begun with a sense of purpose defined by the PVC, Strategy, drawing on the principles in *Plans for Change*. This was to consult with all the staff so that they understood the changes necessary to implement the strategic plan and to encourage and enlist their support. The overall purpose was to change the institution by involving its staff. Thus the programme had a clear sense of direction and an understanding of the desired outcomes, which is essential for a self organising approach to managing change (Morgan 1993). Once the programme began to unfold so fresh objectives emerged. Again these were not pre planned but were a spontaneous response to events. As Morgan (1993) points out a self organising 'termite' looks for opportunities to create 'mounds' of activity, or projects to

undertake which are consistent with the overall direction in which they wish to move forward. Further, just as New Directions encouraged staff to take action themselves, so the self organising termites encouraged others to take their own actions in support of the overall project.

Morgan (1993) states that:

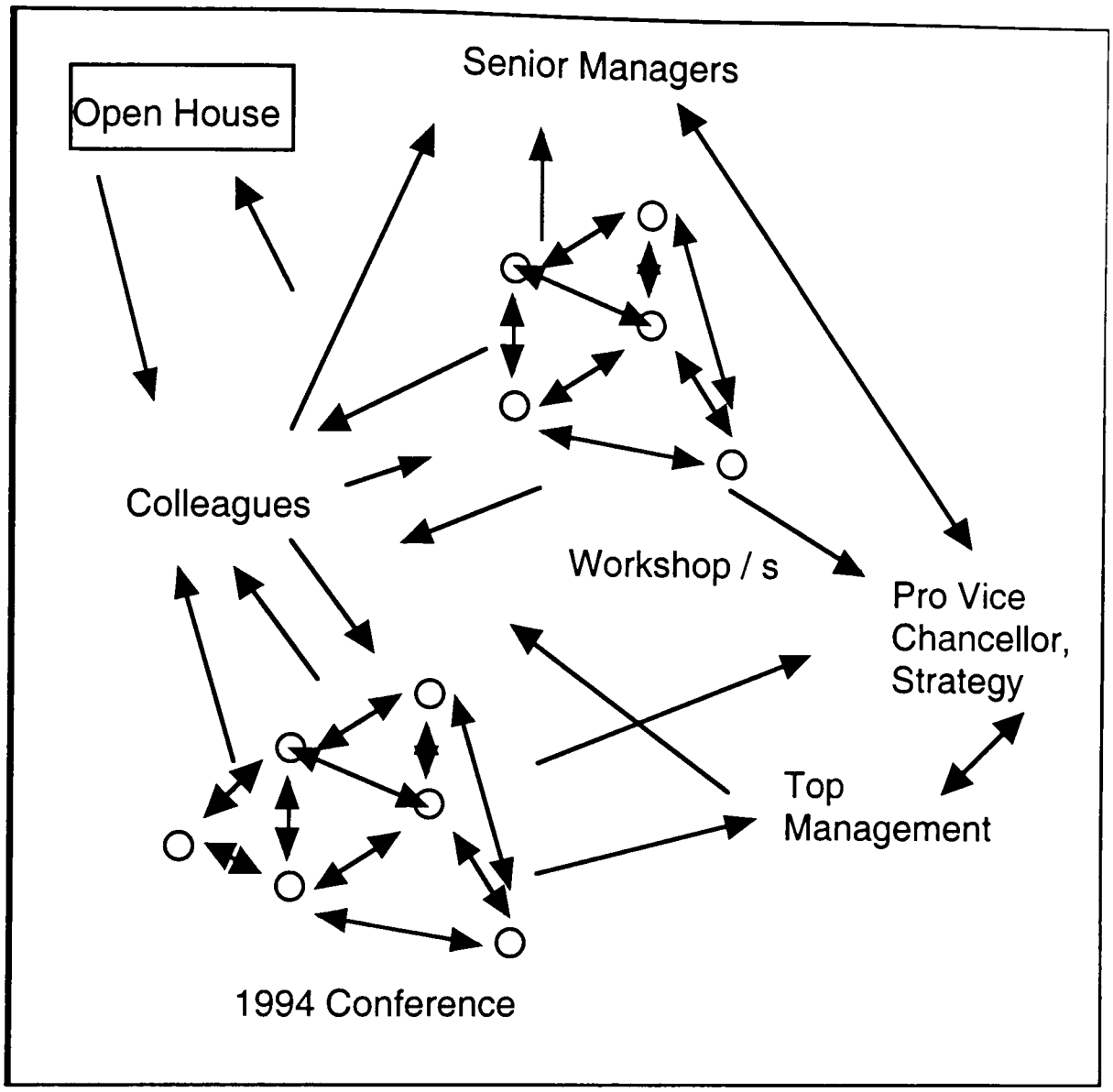
> 'Termites attract termites. The "mounds" of activity that you initiate or support will often energise, focus, and mobilise others of similar mind. They will help yet others create new perspective and leverage on their situations, thus adding to the momentum.'

There is evidence which was discussed in Chapter 8 to show that the behaviour of the activists did indeed attract others to participate in the programme. The people who came forward to create the Staff Survey Team spoke of being inspired and excited at the Conference and wanting to become a part of the programme. Also there is considerable evidence of learning taking place among the activists that changed their perspectives. The activities of the activists created an energy and a momentum which enabled the programme to roll forward for some four years and to evolve in a free form way as Figure 9.1. illustrates.

Fractals

During 1993 and 1994 a rich and complex programme of activity developed out of the initial programme of workshops as Figure 9.2. over the page shows. Each small circle represents a different category of staff. Only one workshop is shown but it is representative of the many workshops that took place. All these events followed a similar pattern. There was always a mix of staff from all categories, grades and locations and the process involved visioning, presentations, discussions and feedback. The content or the theme at each workshop may

Figure 9.2. Interactions.



have been different but the processes always followed a recognisable pattern as did the style and behaviours of the organisers and facilitators. The Pro Vice Chancellor, Strategy or a representative would be present at each workshop to hear the key themes and ideas that delegates put forward. These he undertook to feedback to the University's top management from whence they cascaded down to senior and middle managers. The 1994 Conference was in many ways a scaled up version of the workshops. Even without showing all the events that took place and the number of attendees at each it is possible by looking at the diagram to grasp the richness of the interactions and the possibilities for feedback and amplification of key themes. The programme with its repeat patterning and self similarity which was repeated on a number of levels, sometimes on different scales, throughout the organisation has many of the aspects of an organisational fractal as described by Wheatley (1994). In her

view effective management in an organisation needed to follow simple fractal principles; 'guiding visions, strong values and organizational beliefs.' These are also in her view to be observed in self organising systems. The New Directions programme had visions of an OU of the future, strongly valued all the people in the University and believed in openness and equality. These and other features of the programme, such as its spontaneous and free flowing nature, all suggest that it was essentially self organising and fractal in nature.

Shadow Systems

Another important feature to emerge from New Directions was the establishment of a shadow system. As Stacey (1996) points out there are often many shadow systems in bureaucratic organisations where they offer a way of coping with the mechanistic face of the organisation. Shadow systems are network of contacts that are informal, self organising and operate outside the formal structures (Stacey 1996). The University like any other traditional organisation has many shadow systems formed by staff who network and work together often to circumvent the more cumbersome organisational procedures. The New Directions programme overall created another shadow system, but one that was distinctive, and recognisable. Several of those interviewed described it as a shadow system operating outside the formal structures of the University.

In support of this view, most interviewees saw New Directions as outside the formal structure of the University. See Appendix 1. Example 4. Several, however, did consider that it had links with the formal system and saw this link as being via the PVC, Strategy, Geoff Peters. One described how New Directions was 'linked by a silken rope to the top of the organisation by Geoff'. Two of those who did not see it as existing outside the formal structures thought this was due to its links with the PVC, Strategy. Another viewed it as a 'popular' version of the formal system.

The New Directions workshops brought together staff from all over the University. Many gained important insights into how other staff contributed to the work of the OU and how they could perhaps work together in the future. New informal networks of social contacts were created which had the potential of becoming new shadow systems.

The New Directions groups were all made up of New Directions enthusiasts who responded to the programme and its approach and in so doing created networks of like minded people. People spoke of forming new relationships which still endure. They created and supported a shadow system that existed outside the formal system. The PVC, Strategy had an important role, for his support created the 'space' for the New Directions shadow systems to flourish. In an organisation that is very hierarchical and where permission is often needed to do things then high level support is crucial for any recognisable non official activity.

As secondary data drawn from internal files and other data suggest the 1995 New Directions Action Group provides a good example of a shadow system or network that accords with many features of Stacey's (1996) description of a self organising shadow system. This is summarised and shown in Figure 9.3.on the next page.

Figure 9.4. shows a brainstorm map created by the group at their first meeting on 31st January 1995 when they defined New Directions. The map shows the radical nature of the programme with its energetic and sometimes subversive elements. The University is depicted as a dilapidated classical temple (Handy's role culture?) and one of the New Directions activists as a subversive with a ticking bomb. The Group acted according to its own beliefs and by so doing influenced and challenged the status quo of the OU. Further, its existence

Figure 9.3. Adapted from Stacey's (1996) Concept of a Shadow network system of Organisation

Stacey (1996)	Evidence from New Directions Action Group
Self organising, not established by prior intention or design.	Made up of activists from the Survey Team, the Conference Team & other staff. No-one asked the group to form, it created itself spontaneously.
Not formal or legitimate in that it had received organisation's 'seal of approval'.	It was not a formal or legitimate team: it operated outside the formal structures of the University with no formal reporting lines, although it did report informally to the PVC, Strategy.
May be a fairly long lasting social group or a short lived one that has come together to address specific issue /s.	A fairly long lasting social group & at the same time a short lived one that came together to pursue particular issue: it came together as an action group dedicated to New Directions & to changing the University during 1995 & 1996, but many of the friendships continued long after the group disbanded.
A mechanism that may be used to satisfy social and ' motivational needs' & as a tool for innovation and change.	Used as a tool to promote innovation & change via workshops and publications which encouraged individuals to challenge & change existing practices and ideas.
Is 'essentially destabilising' & sometimes in competition with formal system	It was 'essentially destabilising' and sometimes in competition with the formal organisation.
They change organisations in fundamental ways which alter the existing paradigm.	Major shifts in mental models for individuals but not the organisation as a whole.

added to the tension already existing between the formal systems and the New Directions inspired shadow systems. A tension which made many senior managers uneasy and even hostile.

Stacey (1996a) describes how the 'creative play' of a self organising shadow system is subversive and will ultimately replace parts of the existing formal system. The response to the scaled questionnaire (68%) supports the view that New Directions challenged the 'established ' way of doing things. This happens because members of the shadow system act in highly creative and innovative ways while operating in this system, yet at the same time they are carrying out their normal role in the legitimate system. But any learning that takes place in the shadow system is transferred to the 'everyday' role then part of the formal system is changed. As was discussed in Chapter 8 considerable learning took

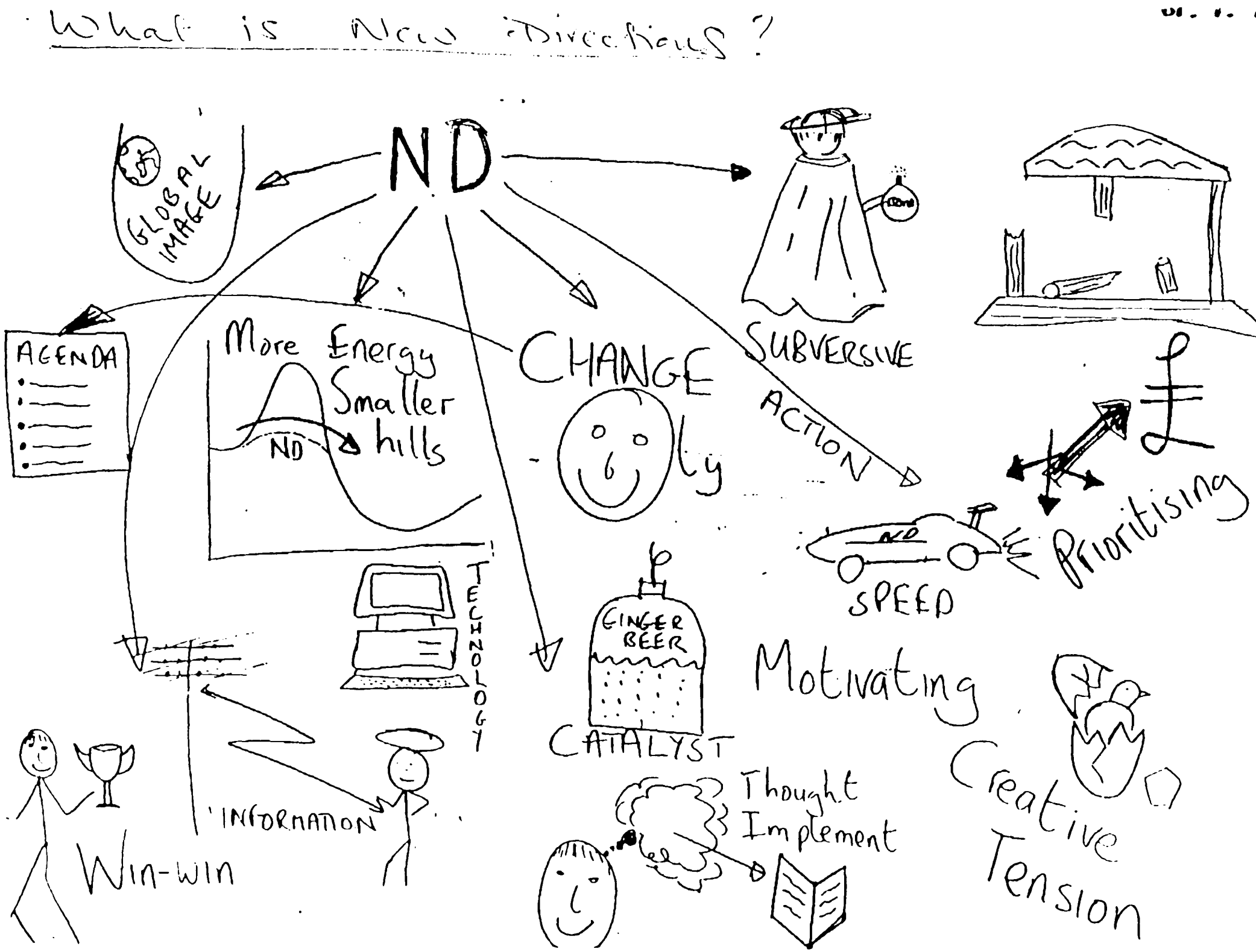


Figure 9.4. What is New Directions? Brainstorm Map from first Meeting of the New Directions 1995 Action Group.

place within the shadow system created by New Directions and many interviewees spoke of changes in the way they carried out their jobs as a result. Thus the self organising shadow system worked through learning to introduce changes into the formal system.

In many ways the New Directions programme was something of a chameleon changing itself to suit circumstances. As one senior manager observed New Directions was changeable in that sometimes it was a ginger group, at other times almost allied to the structure, and at other times it was a counter organisation group and almost subversive. This corresponds to Stacey's (1996) 'fluid, shifting aspect' of a shadow system. Those involved were responding to events and learning how best to adapt and respond themselves to the changing times and changing agendas for action. As discussed in Chapter 8 there is considerable evidence of learning and adaption taking place amongst those who were involved in the New Directions programme. Thus New Directions could be described not only as a self organising shadow system but also as a complex, adaptive system. It could be described as a complex, adaptive system because:

* Its survival depended on learning, adaption and innovation (McMaster 1995)
* The agents or individuals in the system interacted in a way that constituted learning (Stacey 1996).
* It was both self organising and learning (Battram 1996).
* It interacted in a non linear, responsive way with other agents or individuals (Stacey 1996).
* It acquired information about itself and its environment using feedback and used feedback to construct its own models (Stacey 1996).
* It observed the reactions it provoked and the consequences of these to revise the way it responded and behaved, in other words it used feedback to adapt and learn (Stacey 1996).

* Patterns of behaviour emerged that could not have been predicted and could not be ascribed to one individual, thus it had emergent properties (Lewin 1993, Merry 1993, Waldrop 1994).

The phenomenon of emergence is discussed later in this chapter.

9.4. Self Organising Teams

This section builds upon the data discussed in Chapter 8, Section 4, and provides further evidence of self organisation at work by investigating the three of the four teams that arose from the programme: the 1994 Conference Team, the Staff Survey Team and the 1995 Action Group. (The fourth team set itself up to organise the 1996 Conference and Fair and consisted of 12 staff all but 3 of whom had been members of earlier teams.) First of all this section concentrates on the first two teams which were the subject of the team questionnaires.

The 1994 Conference Team and the Staff Survey Team

Both fit Stacey's (1996) description of self organising groups as ones that arise spontaneously around specific issues, communicate and cooperate about the issues, reach a consensus and give a committed response to the issues. The Conference Team very quickly had organised a very successful conference. The Staff Survey Team was convened at the beginning of June and the survey went out to all staff (excluding Associate Lecturers) in October. There was an good rate of response, 65%.

Chapter 5 contains Stacey's (1996) definition of self managed or empowered teams and self organising teams. I have used these definitions to form the basis of the team questionnaire along with statements of my own which were theoretically informed by my readings of Kauffman (1996) Merry (1995)

Wheatley (1994) and others, and my own observations as a member of both teams. Thus my questionnaire seeks to build upon existing knowledge and to enrich it.

The results of the team questionnaire are shown in Figures 9.5. - 9.11. They show the total response / agreement of each team. There were 8 respondents in the 1994 Conference Team and 9 in the Staff Survey Team. The views of the 1994 Conference Team are shown on the left and the Staff Survey Team on the right of each box.

Figure 9.5. shows the response to statements based on Stacey's (1996) definitions of a self organising team. Both teams show many features of self organising teams with the Conference Team in particular showing strong self organising characteristics.

9.5. Self Organising Teams based on Stacey (1996) definitions.

1994 C. Team 8 respondents	Staff S. Team 9 respondents				
An informal, temporary team.	8	3	Not part of the formal reporting structure.	4	2	Influenced by senior management.	7	4
The Team decided its own activities.	8	6	The Team decided who would do what and when.	7	6	The Team was outside the formal organisation of the University.	7	7
The Team was sometimes in conflict with the University 'hierarchy'.	4	3	The Team felt constrained by the University 'hierarchy'.	4	3	'Cultural' differences enriched the team.	7	8
'Cultural' differences sparked off lots of discussion.	6	3	'Cultural' differences caused problems.	0	1			

As Figure 9.5. shows in the 1994 Conference Team there was unanimous support for the notion that the team was informal and temporary and not part of the formal reporting structure. The team was outside the formal organisation of the University and responsible for managing its own activities including

deciding what it would do, how and when. The interviews confirm that a majority, 7 out of 8 of the Conference Team thought it was informal. (See Appendix 1. Example 1.) It was also recognised that there was some senior management influence. This could be a reflection of the supportive role played by the Pro Vice Chancellor Strategy, Geoff Peters, who influenced the team's boundaries and attended a couple of the group's meeting to listen in and give his support. Over half the team thought that their group was also sometimes in conflict with and constrained by the hierarchy of the University. Cultural differences were seen as having an impact in both stimulating discussions and enriching the team. Overall there is a high level of match between the features of the Conference Team and Stacey's definitions.

The Staff Survey Team did not identify so closely with a self organising team. Only a third saw the team as informal and temporary and it was considered by most to be part of the formal reporting structure yet outside the formal organisation of the University. The interview data also records that 6 out of 9 of the team members thought the team was informal. (See Appendix 1. Example 1.) Another three interviewees, however, thought that the team was an informal one but with formal aspects. Given the way the team was set up and the reporting lines that the project brought with it then these various distinctions make sense. Yet in terms of its own management it scores highly on self organising aspects, for example, deciding upon its own activities and what it would do, how and when. It also scored highly on the impact of cultural differences which enriched the team and sparked off lots of discussion. The team saw the influence of senior management as less than the Conference Team. This is interesting given that a senior manager with formal responsibilities for the project was a member of the team. But as discussed in Chapter 8 he was not felt by other team members to have any real authority or power and his influence was seen in terms of his role as a team member rather than his status as a senior manager. A third of the group thought that the team

was self organising in that it was sometimes in conflict with the University hierarchy and also constrained by it. As discussed in Chapter 8 the Survey Team data illustrates some of the issues that arise when a team is set up in a self organising mode by a bureaucratic organisation which issues it with its task and formal reporting lines. Provided the team is composed of enthusiastic volunteers and given a free hand then such a team can work well within the confines of an organisation that is essentially bureaucratic.

Figure 9.6. shows the response to statements based on my own definitions of a self organising team.

Figure 9.6. Self Organising Teams based on my own definitions.

1994 C. Team 8 respondents		Staff S. Team 9 respondents			
The Team knew what it had to do and was left to get on with it.		The meetings were loosely structured.		We did not have an agenda.	
8	7	8	9	1	1
The Team's purpose influenced the structure of the meetings.		Decision making was mainly a spontaneous process.		There was lots of freedom to explore different ideas.	
7	8	7	3	8	3
There were lots of ideas.		Ideas emerged spontaneously.		There was a lot of energy & enthusiasm in the Team.	
6	6	8	7	8	7
Linked to the formal reporting structure.					
4	6				

Overall the 1994 Conference Team identified with statements which defined the group as self organised. It was unanimous in that it knew what it had to do and was left to get on with things. This is confirmed by the interview evidence. There was plenty of freedom to explore ideas which emerged spontaneously and that the group was energetic and enthusiastic. Everyone agreed that the meetings were loosely structured and a majority thought that the meetings' structure was influenced by the team's purpose. There was overall agreement that decision making was mainly a spontaneous process and that there were

lots of ideas. Half the group thought the team was linked to the formal reporting structure. The picture that emerges matches that formed by data from the interviews and the workshop as discussed in Chapter 8. The team is vibrant, self organised, energetic, full of ideas and enthusiasm and is left to get on with things in its own way.

Over half the Staff Survey Team identified with self organising aspects but not as strongly as the other team. There was unanimous agreement that the meetings were loosely structured. Further, that there was a lot of energy and enthusiasm in the group, that ideas emerged spontaneously. The team knew what it had to do and was left to get on with it, as the interview data confirms. Most also believed that the team was linked to the formal reporting structure. A significant majority thought that the team's purpose influenced the structure of the meetings. As with the Conference Team a picture emerges of an energetic and enthusiastic group, with lots of ideas, that was free to get on with the job and had a clear sense of purpose which helped structure its meetings. Again this closely matches the picture which emerges from the interview and workshop data as discussed in Chapter 8.

Both teams show many features of self organising teams with the Conference Team in particular exhibiting strong self organising characteristics. See Figure 9.7.

Figure 9.7. Self Organising Teams.

Self Organising	Stacey (1996) Definition	My Definitions	Overall Match (Both definitions)
1994 Conference Team Match	70%	81%	75.5%
Staff Survey Team Match	46%	63%	54.5%

Self Managed or Democratic Attributes

Both teams also had some aspects of a self managed or empowered team. See Figures 9.8.and 9.9.

Figure 9.8. Self Managed Teams or Democracy based on Stacey (1996) definitions.

1994 C. Team 8 respondents	Staff S. Team 9 respondents	
A formal temporary team. 0 8	Part of the University's formal reporting structure. 0 1	Indirectly controlled by senior management. 2 3
A senior manager decided on the Team's activities. 0 2	A senior manager decided who would do what and when. 0 1	The Team was part of the formal organisation of the University. 1 1
'Cultural' differences had very little impact. 0 0		

The members of the 1994 Conference Team did not see themselves as a self managed team. The only area where there was any significant identification was in respects of being indirectly controlled by senior management. This may reflect the perceptions of 2 of the group regarding New Directions and its relationship with the Pro Vice Chancellor, Strategy referred to in Chapter 8.

The Staff Survey Team had some attributes of the self managed or empowered team. A majority saw it as a formal, temporary team with a third considering it indirectly controlled by senior management. However, there was very little support for the notion that it was part of the formal reporting structure and formal organisation of the University.

Figure 9.9. Self Managed Teams or Democracy based on my own definitions

1994 C. Team 8 respondents	Staff S. Team 9 respondents
There was some energy & enthusiasm in the Team. 0 2	Decision making was mainly a planned process. 2 6
The Team's purpose did not influence the structure of the meetings. 1 1	The agenda was very flexible. 8 5

In the 1994 Conference Team there was some support for the notion that the team's purpose did not influence the meetings and two team members thought that decision making was a mainly planned process. (Yet one of these clearly thought it was both planned and spontaneous as the results show - see Figure 9.6. too.) There was unanimous agreement that the agenda was very flexible and the overall match is mainly attributed to the support for this notion. Overall the Conference Team had some self managed aspects but it was predominantly self organising.

Over half the Staff Survey Team thought that decision making was mainly a planned process and that the agenda was very flexible. But there was very little support for the notion that the team's purpose did not influence the agenda and that there was only some enthusiasm and energy in the group. (The vast majority thought there was a lot of energy and enthusiasm). Just over a third of the team identified with self managed features with most support coming for planned decision making. This may reflect the nature of the task ie. a formal University project with a fixed budget, and deadlines for production and delivery.

Figure 9.10. shows the overall match, with the Staff Survey Team showing more self managed attributes than the Conference Team.

Figure 9.10.

Self Managed	Stacey (1996) Definition	Own Definition	Total Match
1994 Conference Team Match	5%	34%	16%
Staff Survey Team Match	25%	39%	30%

Traditional Teams

As regards traditional teams the 1994 Conference Team were unanimous that

none of the statements described their team. The Survey Team only identified with 2 of the 6 statements. See Figure 9.11.

Figure 9.11. Traditional Teams based on my own definitions.

1994 C. Team 8 respondents	Staff S. Team 9 respondents	
Directly controlled by senior management. 0 1	The meetings were tightly structured. 0 0	It was not easy to depart from the meeting's agenda. 0 0
There was not much freedom to explore new ideas. 0 3	There was no energy & enthusiasm in the Team. 0 0	There was little energy & enthusiasm in the Team. 0 0

Self Organising Teams

As the evidence shows both teams could be described as self organising although the Survey Team has significant attributes of a self managed or empowered team. This would appear to reflect the nature of the team's project and its link with the formal organisation of the University (ie. it was carrying out a project on behalf of the Staff Policy Committee).

The interviews confirmed that all the members were clear about why the teams were established. Both teams were sure about their aims and objectives, had a clear, strongly shared sense of purpose and thus a reason for being. This is essential for any self organising system.

Further evidence on the experience of working in the teams was provided by the responses to the team questionnaire. Team members were asked to describe their experience of working in the teams by selecting any word or words from a list of 24 words. Figures 9.12. and 9.13. which follow show their response. The number in each box indicates the number of respondents who circled that word.

Figure 9.12. 1994 New Directions Conference Team - 8 members.

Discussion 7	Debate 4	Dispute 1	Argument 2	Spontaneity 8	Fun 8
Tension 3	Conformity 0	Excitement 8	Boredom 0	Tedium 0	Unusual 6
Traditional 0	Creative 7	Routine 1	Orderly 1	Energetic 8	Bureaucratic 0
Anger 0	Cohesive 4	Self organised 7	Conflict 0	Empowered 7	Stimulating 8

What features did the Conference Team associate with their experience of working in a team with many self organising aspects? Overall there is a high level of agreement. All 8 respondents chose:

excitement; fun; stimulating; spontaneity; energetic.

Further, 7 out of 8 also selected:

creative; self organised; empowered; discussion;

A third or more selected:

unusual; cohesive; debate; tension

A very strong picture emerges of a group that worked together well, discussing and debating the issues in a creative and energetic way. A team that felt it was empowered and self organised and where spontaneity and fun enhanced the experience. The team did not consider itself a 'traditional', 'bureaucratic', team or one where the experience of participation may have produced 'anger', 'conflict', 'tedium', 'boredom' or 'conformity' (No votes).

Figure 9.13. The Staff Survey Team - 9 members.

Discussion 8	Debate 7	Dispute 2	Argument 1	Spontaneity 3	Fun 3
Tension 1	Conformity 0	Excitement 2	Boredom 0	Tedium 0	Unusual 0
Traditional 0	Creative 7	Routine 1	Orderly 1	Energetic 4	Bureaucratic 1
Anger 0	Cohesive 3	Self organised 4	Conflict 1	Empowered 5	Stimulating 7

The Staff Survey Team also showed a high level of agreement. 8 out of 9 selected 'discussion', and 7 out of 9 the following:

debate; stimulating; creative

A third or more selected:

fun; spontaneity; empowered; self organised; energetic; cohesive; full of debate

No-one described the team as 'traditional' nor the experience as producing 'boredom', 'tedium', 'anger', or 'conformity'. Yet 'argument', tension' and 'conflict' each received one vote. Three different members of the administration selected these. Similarly 'orderly', 'bureaucratic' and 'routine' each received one vote. There is a note of dissatisfaction and discomfort here but overall people found the team to be creative, stimulating and energetic and one that thrived on discussion and debate.

These pictures of both teams are further reinforced and filled in by the additional comments that the respondents added to the team questionnaire. These are as follows:

The 1994 Conference Team: 4 added comments

1. 'Good to work in'
2. 'enriching'
3. 'different', 'challenging', 'positive'. 'active', 'bonding', 'uncertain', 'scary'
4. 'frustration, things not changing quickly enough'.

The Staff Survey Team: 4 added comments

1. 'Commitment', 'enthusiasm'
2. 'diversity', 'lack of experience and expertise'
3. 'focussed', 'harmonious','constructive'
4. 'we all felt we had something to contribute, we all had respect for others opinions / ideas'

They emphasised that Conference Team was not only good to work in but was challenging, enriching and different, if at times one person found the experience to be a bit 'scary' and another wanted things to move and change more quickly. Further, it was a positive team and an active one that bonded the members together. The comments on the Survey Team emphasise the commitment and enthusiasm of its members even, if at times, they lacked expertise and experience. They also highlight the diverse nature of its membership, their constructiveness and their shared focus. Overall the results of this exercise support the findings of the other part of the team questionnaire and the interview and workshop responses. There were no significant differences.

The 1995 New Directions Action Group

The third team, the New Directions Action Group was a ginger group which formed spontaneously in early 1995 in response to the issues that had been thrown up by the Conference and the Staff Survey. It had 17 members,12 of whom had been members of either the Conference Team or the Survey Team. It defined its role as a group dedicated to motivate and enable change in the University by encouraging local action and creativity. It would listen to all the staff, keep them informed and empower them to take action. See Figure 9.4. and Figure 9.14.

When it first met in January 1995 the Group used brainstorming and discussion to forge its new identity and an electronic white board to facilitate and record the process and outcomes. The Group first agreed what everyone considered New Directions stood for (Figure 9.4.) and developed a shared vision of the OU of the future (Figure 9.14.). It then moved on to discussing priorities for action in order to achieve this and then set up project groups for 1995 with names attached to each project. Seven projects were listed and 4 were later achieved. The Action Group at its first meeting had used the style already developed in the earlier

The 'new' OU is.

31.1.95.

Students

Responsive

Dynamic

Ready to Go

Realistic

BIG

Build on Strengths

Markets

OPEN

Exciting

Listening

Radical

PERSONAL

Empowered

Informed

Risk taking

LEANER

RELIABLE

HIGH QUALITY

TECHNOLOGICAL

National Education Service NES

Figure 9.14. The 'new' OU is - The 1995 Action Group.

teams. It had quickly explored the issues, made decisions via consensus and agreed actions and responsibilities. A shared commitment had encouraged self organisation and experience had enabled it to self organise to deliver.
It fits well with Stacey's (1996) description of a shadow system or network as discussed earlier (See Figure 9.3) and his description of self organisation as:

> 'a fluid network process in which informal, temporary teams form spontaneously around issues... and decide on who takes part..... and what the boundaries around their activities are.'

A key feature of self organisation is that people empower themselves (Stacey 1996) and the new group did just that, for example, it devised and ran a series of workshops designed to challenge the 'blame culture'.

The IES study describes how members of staff formed 'an informal ginger group' which by 'putting some energy and enthusiasm into the organisation' helped 'it become more radical and responsive.' The OU is described as changing as an organisation and in a significant way. Further, these changes are ascribed to an informal group of staff who were able to pump energy and enthusiasm into parts of the University. This was an informal group with no official status and yet it managed to make a significant impact on some individuals and some areas the organisation.

9.5. Emergence

Emergence is a key feature of a self organising system (Merry 1995) and a complex, adaptive one (Coveney and Highfield 1995, Lewin 1993, Merry 1995,Waldrop 1994). There is evidence of emergence and other self organising principles in the patterns of behaviour which became identifiable as the New Directions way of doing things. In the same way that a flock of birds

self organises and a number of key principles emerge to ensure an effective and spontaneous response to circumstances that the whole flock follows (Waldrop 1994), so too did unwritten and unintentional principles emerge which the New Directions groups followed. As with the flock, there was a key purpose. For the birds survival is more likely if they take off and fly as a group. As discussed in Chapter 8, for the New Directions groups changing the OU was what New Directions was all about.

Further, as the data discussed in Chapter 8 showed various levels of learning was experienced by those who were involved in the New Directions programme and there is evidence of complex or double loop learning that changed the way a number of individuals viewed the world and the way they behaved. In other words, their attitudes and behaviours, and thus their lives, were changed as a result of their belonging to a larger entity, an entity which they had helped to create. This in Lewin's (1993) view is another example of the phenomenon of emergence.

Further evidence of emergence is provided by the IES study, which describes how the programme 'began as a way to involve staff but became something much more as teams started to put on events themselves.' No-one could have foretold the way the New Directions programme would evolve. But a series of workshops, briefings, and publications coalesced into a greater whole that was described by staff as a 'movement' for change and as the 'people's programme'. In other words, out of all the workshops and other activities unexpectedly emerged something greater than the sum of the parts. It became an unexpected collective expression of individual energies, beliefs and aspirations.

9.6. The Edge of Chaos

By the late 1980s and early 1990s the Open University had become a well-established, world renowned institution for distance learning. The early radical, innovative behaviours created when it challenged existing notions of education had become part of its established patterns for course development and delivery. Further, a large administrative function necessary to support its distance teaching systems and the need for economies of scale had been set up on the civil service model. Overall the University existed in a stable state and most nearly matches Battram's (1996) Class II, Order, behaviour described in Chapter 5. This describes an organisation in a state that is complacent, unresponsive with repetitive behaviours rather like IBM in the 1980s. Battram compares it with a living cell pattern where the cells are oscillating between a number of states in a repeating pattern with some information passing between them. This is a position not far from Kauffman's (1996) 'frozen, ordered regime' and the kind of rigid organisation that is in danger of ossifying and dying (Merry 1995).

There is evidence as discussed in Chapter 8 to suggest that at its height the New Directions programme did move involved individuals and those areas of the University influenced by its activities away from a stable position and closer to the edge of chaos. The New Directions movement created a dynamic that actively challenged the status quo in some areas. It created a large self organising shadow system and also spawned several small shadow systems as delegates from the Conference and the workshops formed new networks. Thus over a four year period there was a surge of new networks and a nest of fresh shadow systems was created. As a result information and energy flowed in new patterns across all these new webs and connections and in Battram's (1996) view, extra information flows between living cells and more flexibility between them, moves them closer to Class III, or the edge of chaos. Those involved in the programme believed that it influenced a number of changes which took place and provided fertile soil for some of the ideas in the strategic plan to take

root. Further it created a rich learning environment so that involved individuals and groups changed their views and behaviours and thus their bit of the organisation. It also actively experimented and took risks in the cause of innovation and creativity. Merry (1995) describes how a system or an organisation balanced on the edge of chaos is neither so orderly that it is likely to ossify and die nor so disorderly that it is likely to break up. An organisation on the edge of chaos exhibits creativity, novelty, risk taking and experimentation and is continuously learning and adapting (Merry 1995), all attributes of New Directions and its influence. The pull between the stable parts of the University and the self organising energies of the New Directions programme supports Stacey's (1996) 9 point complexity theory of organisation as discussed in Chapter 8 and summarised in Figure 8.9.

If the New Directions programme was operating close to the edge of chaos how much of the University did so too? Given that some 23% of the staff, chiefly from Walton Hall, were involved in the programme then it is clear that as an institutional whole it would not have been operating at the edge of chaos. However, New Directions had some influence during its lifetime and there were pockets of activity, particularly in the administrative areas were activists and others tried to emulate the principles and approaches of New Directions and so moved their own bit of the University nearer to the edge of chaos.

In 1996 the external environment changed, and interviewees described how many senior managers became fearful and fell back on traditional controlling behaviours. Thus the orderly, formal system was strengthened. At the same time New Directions was partly absorbed into the formal system as some of its ideas were adopted. For example, as the secondary data indicates, the lunchtime briefings were taken up by the Public Relations department and became 'On the Record.' Further, many of those previously active described how they felt overwhelmed by the new challenges and extra workloads and how

energy drained away from the programme. Thus the New Directions self organising shadow system was weakened and much of the creativity that challenged the status quo was lost. There were fewer New Directions activities as evidenced by the drop in the number of workshops and briefings. Thus information flows, the number and variety of interactions and the possibilities for positive feedback were reduced too. Thus during 1996 and 1997 the programme and its activities moved away from the edge of chaos zone.

9.7. Key Players and using Chaos and Complexity

The IES study notes that one of the key people behind the programme 'embraced some of the key principles of chaos theory, which encouraged a basic acceptance of letting things go where they will.' Here is a direct link between the way the programme evolved and chaos theory.

'Is the OU on the edge of chaos?' This full page article written in *Open House* by Carol Russell in July 1995 shows how ideas derived from chaos were being thought about by at least one member of the New Directions Action Group. Carol Russell was 'chair' of the Conference Team and the New Directions Action Group and as such was a very active and influential figure in the New Directions movement. Further, she was not interviewed as part of the IES study. The article provides evidence of real understanding of some of the major chaos concepts and their application in an organisational context.

She describes the 'complex network of contacts' that form and shift around staff activities and how people respond to change and 'chance events'. 'Chaos' is referred to as 'OK' and she points out that although the theories of chaos may seem remote from everyday applications they do in fact offer practical insights and she lists examples. Carol also discusses the importance of the Butterfly

Effect and how individuals can and do make a difference. Further, she writes:

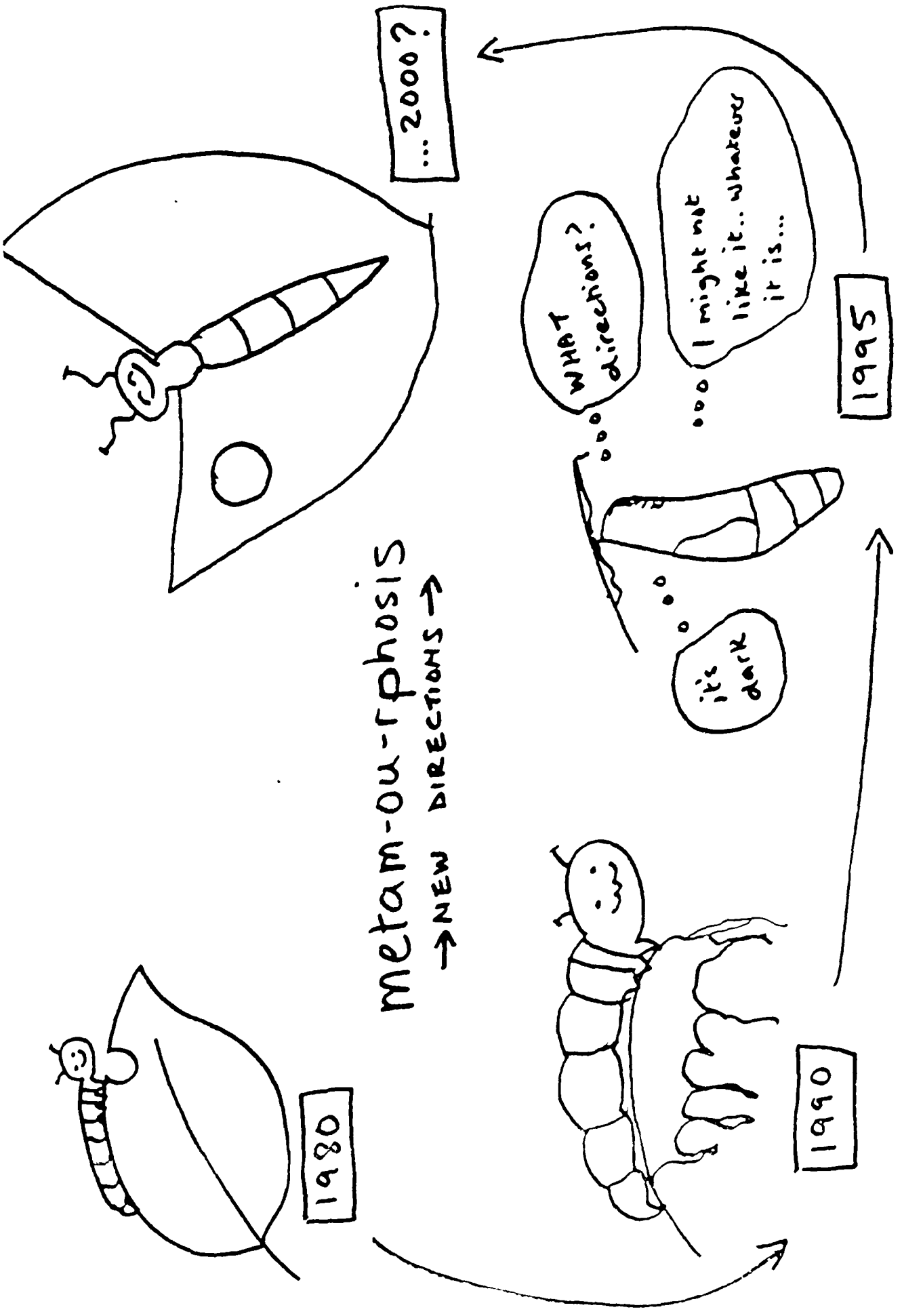
> 'Chaos theory doesn't imply that we should leave everything to spontaneous self-organisation, and ditch all the rules and structures. What it does show is that many systems in nature have a balance of order and disorder.'

Other evidence of understanding of the Butterfly Effect is provided by a cartoon from the 1996 New Directions Calendar. This is drawn by a supporter of the programme who attended several of the meetings of the 1995 Action Group. The cartoon, Figure 9.15. is shown over leaf and shows use of the Butterfly Effect as a metaphor for an unpredictable and emerging future. A brief discussion of the basic principles of the Butterfly Effect took place during many of the workshops during 1993 and 1994 as part of a commitment to encourage staff to make changes in their own area. In a bureaucracy many people tend to believe power and influence lies within the hierarchy and one's place within it. New Directions by promoting the importance of small changes sought to overcome this and to stimulate people to take action.

In a section headed: 'Learning and living with chaos', Carol Russell discusses some of the options for change that the OU could pursue and concludes that already the University is doing this via New Directions. She writes:

> 'The New Directions programme fits in perfectly with the "chaos" model of organisational development. From the start it set out to encourage us to link up in different ways, to support and develop 'Plans for Change'. There was no pre-planned list of activities. Numerous projects developed as we went along, as more people became actively involved.....And there's more to come, although I don't know exactly what.'

Figure 9.15. Calendar Cartoon



9.8. Conclusion

Chapter 8 concluded that overall the New Directions programme developed in a way quite unlike the standard models for strategic change. This was due mainly to a more innovative, participative approach to organisational change which used some of the more modern ideas on change, especially those derived from notions of the learning organisation and the role of key activists. But, as Chapter 8 also suggested, the programme also drew upon ideas and insights from the new sciences of chaos and complexity. Further it did so in a way that complemented and enriched the newer ideas on organisational change. Morgan (1993) considers that if managers are to learn how to cope with the flow of unpredictable events that shapes their working lives then they will need to become skilled in 'managing disorder' and in helping their organisations to self organise and evolve. In his view consideration of the behaviours of a self organising termite colony can teach managers a great deal about how to deal with a turbulent world. There is a direct link here between some of the more innovative approaches to change and the new sciences. It is a link which resonates with the way the New Directions programme blended modern approaches to change with ideas from chaos and complexity. Handy (1990) points out that organisations will need to think and act very differently if they are to survive. He suggests that one way of doing this is to reframe the way we see the world. As discussed in earlier chapters, ideas from the new sciences challenge the existing paradigm and enable one to reframe one's world view. Learning is key to the development of the complex adaptive systems (Battram 1996, McMaster 1995, Stacey 1996) of complexity science. Thus by espousing ideas from the new sciences one is able to link together Handy's notions of reframing and learning in another meaningful way.

The data from the New Directions programme shows that it is possible to use ideas derived from the new sciences of chaos and complexity to create an

effective and innovative change process in a traditional, hierarchical organisation in the bureaucratic mould. The programme created a spontaneous process for change that drew on self organising principles and used self organising teams. Johnson (1996) points out that the Open University uses self organising principles to initiate the development of creative course teams. In his view the University provides a 'backcloth structure' which enables academics to self organise. But this enables only one section of the University community to self organise and only in one context, that of new course development. The New Directions programme created a 'backcloth' which offered some non academic staff the opportunity to self organise. It did this by offering all categories of staff a chance to become involved and by the open, responsive way it did it, thus creating the conditions for several self organising systems to emerge. These systems, one of which was the New Directions programme itself, with their focus on the future of the University and the need to make changes energised a number of individual and group dynamics for institutional change.

The self organising systems created by the programme responded and adapted to events and ideas as individuals engaged in double loop learning. Their learning and consequent revision of outlook and attitudes led to new actions and fresh interpretations of the organisation and their role in it. Complex adaptive systems are all about learning and changing (Merry 1995). This was the experience of most activists in the programme and their double loop learning ensured that their self organising systems developed into complex adaptive ones (Stacey 1996). Notions of double loop learning (Morgan 1993) and second order change (Dale 1994) features of learning organisation theory are also aspects of the complex adaptive systems of complexity science. Real learning and real change have a symbiotic relationship that is recognised both by theorists from the new sciences and the learning organisation. Here is a bridge between organisation / management theory and scientific theory.

Merry (1995) considers that 'evolutionary' learning develops the competencies necessary to operate at the edge of chaos. Learning and adaption push a system to the edge of chaos (Merry 1995, Waldrop 1994). This is where complex adaptive systems flourish and where an organisation is at its most creative and innovative (Stacey 1996). As the New Directions programme showed the creation of a new shadow system in an organisation, typically a bureaucracy, where people are familiar with shadow systems, can have a profound effect on parts of the organisation if the shadow system creates a tension with the formal systems that pulls towards the edge of chaos. New Directions by creating several self organising shadow systems, which also were complex adaptive systems, pushed some individuals and some groups away from an equilibrium state (Michaels 1990) and closer to the edge of chaos. This is an excellent place to be but it requires balancing between a rigid, ossifying order and a deeply chaotic state where things begin to disintegrate (Kauffman 1996, Merry 1995). The University with its very orderly systems and controlling mechanisms provided a counterweight to the more radical tendencies of New Directions and so paradoxically helped maintain the programme and the pockets of New Directions inspired activity at the edge of chaos. Although a traditional bureaucratic organisation does not readily provide the right kind of environment for a self organising change intervention to flourish, this suggests that should such an intervention takes root it is unlikely to tip the organisation over into the chaotic realm where it would disintegrate. Thus I would suggest that an effective way to change a bureaucracy is not to restructure by cutting out layers of management and procedures but rather to provide the right environment for a number of self organising change processes to flourish. Change the way people think and work and then they will through their thinking and behaviours introduce new ways of doing things that will change structure and accompanying procedures as part of an ongoing process.

If one considers the New Directions programme in the light of the new sciences of chaos and complexity then there is significant evidence to show how insights and principles derived from them can work to change a complex and bureaucratic organisation like the OU. There is evidence of self organising principles at work, of emergence, and of complex and energising dynamics that can lead to the edge of chaos. Further, as shown in Chapter 8, there is evidence of complex learning taking place which is necessary for the evolution of complex adaptive systems.

In Chapter 5 Nonaka (1988) describes some of the ways an organisation can create chaos or fluctuations in order to transform itself. How well did the New Directions process match his conclusions drawn from research on Japanese companies? The programme mirrored several of his ideas as follows:

* Via its early workshops in particular, it offered strategic visions which were open to interpretation and debate. This did lead to creativity.
* New information entered the 'system' via the use of external speakers at the Conferences.
* It promoted 'creative dialogues' between groups of staff and encouraged experimentation.
* It stimulated 'dynamic cooperation' and encouraged employees to change their points of view
* It set up self organising teams 'protected' by senior management (the PVC, Strategy)

But it did not seek to seek to create a crisis and provoke extreme reactions from people. This is an extremely risky strategy, which Nonaka admits can put people under extreme pressures and even cause the organisation to disappear. Such an extreme strategy is unlikely to find favour within a traditional UK organisation. Indeed, when a crisis did arise in late 1995 / 1996 and the funding situation became critical it did not lead the University into creative new

ways but rather many managers fell back upon the old way of doing things. This leads me to doubt whether such an approach would work in traditional UK organisations.

The use of ideas derived from the new sciences has important implications for notions of organisational change based on high level, long term strategic planning followed by a cascade of implementations. The amount of resources needed to support such an activity is considerable. Conventionally, huge amounts of data are collected, considerable analyses undertaken, reports drafted, considered, re circulated and considered again. All this before the challenges of implementation. The process consumes a great deal of time, energy and resource and there is no guarantee that the outcome will have any real value in an unpredictable world. Further, the implementation process may be fraught with difficulties as there is a minimum of shared understandings (see Figure 8.8 in Chapter 8) and a great deal of time and resource is spent on communicating the outcomes of the process.

If the New Directions approach is taken then resources are required to set up workshops and project teams and possibly to ensure flows of information. But once the systems start to self organise then the dynamic they create tends to create its own energies. As the teams demonstrated the staff involved were able to carry out their project work in addition to their normal roles. Some people may become highly energised and motivated, as did the staff who spontaneously created the Action Group. It is likely that most energy will be demanded of those managers with controlling tendencies who will need to refrain from interfering. This is not to suggest that there should be no long term, high level planning but rather that thinking and the practice needs modification. A participative approach to envisioning the future and a self organising response may prove more effective and less demanding on both people and resources.

The New Directions groups showed that people organise and get on with things without waiting for someone to tell them what to do. They experiment and learn from each other, new behaviours are developed and new patterns and principles for being emerge. This is true emergence where it is not possible to predict what eventually happens nor to reduce the patterns of activity to any one individual's action. It is a very effective way of delivering discrete change events in project form.

Knowing that small perturbations can over time lead to major changes ie, the Butterfly Effect, suggests that organisations need not rely on major change initiatives to make a difference. Additionally, as many of those interviewed observed small changes are more palatable than large ones and have the added advantage of often being unopposed.

Most significantly to introduce an effective New Directions style change process then everyone in a traditional, hierarchical, bureaucratic organisation needs to view change and the change process in a fresh light. Organisations are entering an era of unprecedented change (Handy 1990) and the unpredictable nature of the real world means that long term planning is not an effective tool for delivering the future (Morgan 1993). Notions of change as a predictive, orderly, and cause and effect phenomenon are no longer useful. The world is much more complex and unpredictable and newer approaches to change are needed (Morgan 1993, Durcan et al 1993). Looking at real life models, such as living systems with their self organising attributes and their complex learning and emergent properties can suggest new, realistic models to use within an organisational context. The experience of the New Directions programme at the Open University support key aspects of Stacey's 9 point complexity theory of organisation and builds upon it by indicating several ways in which such an approach may be realised. Further, it suggests new ways of achieving

organisational change, even in a traditional style organisation, including using a *transition* model, which are discussed further in Chapter 10.

CHAPTER 10

CONCLUSION

This thesis has sought to explore a major question: What can we learn about organisational change and transformation from the New Directions Programme 1993 - 1996 and ideas and approaches derived from the new sciences of chaos and complexity. In this final chapter I address this question directly and discuss the notion of a *transition* strategy model which suggests an integrative way forward for organisations that wish to embrace both traditional and 'new sciences' approaches to strategic change.

10.1. New Directions and the Literature on Transforming Organisations using the New Sciences

There is considerable evidence, as shown in Chapters 8 and 9, that implicitly and sometimes explicitly, the use of ideas and insights from the new sciences of chaos and complexity were an important part of the New Directions change intervention. New approaches to the notion of organisational change were encouraged and useful ways of stimulating and creating an innovative change process offered. In this section I discuss how this thesis both supports and adds to the literature, particularly Stacey's, on using the new sciences to transform organisations.

The case study evidence fits well with Stacey's notions on the use of the new sciences in organisations discussed in Chapter 5 which were used to help form the theoretical framework within which to explore and consider the evidence. As shown in Figure 8.9 in Chapter 8 many aspects of the New Directions programme and the way it operated within the University support key features of

Stacey's (1996) 9 point complexity theory of organisation. Stacey (1993) describes eight steps with which to create order out of chaos and promote the conditions where spontaneous self organisation can arise. This chapter considers New Directions within this framework and finds that it fits with five aspects of this model and there are links with two *others as Figure 10.1. shows.

Figure 10.1. Order out of Chaos adapted from Stacey (1993).

Stacey's (1993) 8 Steps	**New Directions' Activities**
Develop New Perspectives on the Meaning of Control - group learning encourages a self policing form of control. Managers have to let go.	PVC, Strategy and the workshops encouraged managers to take part in group learning & to empower staff & free them from unnecessary controls.
Design the Use of Power - The use of power or authority over groups inhibits complex learning development.	The workshops & the Conference facilitated the development of complex learning by encouraging open questioning and the public testing of issues.
Encourage Self Organising Groups.	Encouraged formation of 3 self organising groups.
Provoke Multiple Cultures - move people around the organisation & bring in new blood.	* The Conference identified the need for more IT skilled staff & in 1995 / 96 a new cohort of academic staff with high level IT skills was recruited.
Present Ambiguous Challenges or half formed issues instead of Clear Long Term Objectives or Visions - to provoke active searching for new ways of doing things.	The workshops & the Conference presented strategic challenges and half formed issues to provoke discussion and debate and the search for new ways of doing things.
Expose the Business to Challenging Situations - organisations need to take risks.	*Workshops discussed innovative & risky strategies. Did they influence future plans eg. massive NT investment & global expansion plans?
Devote Explicit Attention to Improving Group Learning Skills - groups of managers need to questions long held beliefs & develop new mental models.	The workshops & the Conference created opportunities for managers working in groups to question long held beliefs & to develop new mental models
Create Resource Slack	No additional resource was provided to free up staff time for New Directions.

In one major respect the programme does not fit with Stacey's model. The

University did not create resource slack and evidence from the New Directions teams shows how this did sometimes cause work overload problems for some staff. Analysis of the data discussed in Chapters 8 and 9 provides further information on how the five steps which match Stacey's model might be carried out. Further, it provides real life evidence of the kinds of changes such an approach may bring about and serves to reinforce Stacey's model as a valuable way to create real change.

Nonaka's (1988) observations of renewal in Japanese firms convinced him that an organisation needs a strategic vision which is open to interpretation if it is to create renewing chaos. Further, it needs processes which encourage 'creative dialogues' between groups of staff regardless of status, and opportunities for experimentation and debate. These factors create fluctuations in ideas and points of view which if amplified by a series of feedback loops and fed back into the organisation stimulate waves of change. The University's strategic action plan, provided the strategic vision around which the workshops created a flow of dialogue and debate which was amplified via a variety of feedback systems and over time set up waves of change across those areas of the institution involved in the programme. Thus the case study evidence supports Nonaka's ideas and shows that it is possible to effectively transfer some of them from a Japanese context into an English one. However, his notion that people need pushing to the edge by using extreme pressure is one that I do not believe would transfer well and was not one that was used in the New Directions process.

The Open University is a complex, cumbersome organisation that had not changed significantly since its early days when the New Directions programme took place. Many of its systems are very orderly and well controlled. Thus as an organisation it was operating at close to equilibrium. Merry (1995) advocates that such an organisation needs to loosen up its systems so that it moves

towards the edge of chaos where it can function at its optimum. This can be achieved by removing some of the bureaucracy and inflexibility and encouraging and enabling learning to take place. The New Directions intervention sough to do this by encouraging individuals to make changes in their own processes and by creating opportunities for complex learning to take place. It succeeded in doing this within the boundaries of the programme itself and particularly through the activities of enthusiastic volunteers.

The new sciences teach us to look for flows and patterns in organisations rather than static structures. Wheatley (1994) emphasises the importance of recognising the energy flows in an organisation. Evidence from the case study supports Wheatley's contention that energy comes through relationships and is encouraged by participative management and the formation of self organising teams. It also confirms Capra's (1996) definition of a self organising system as one that has a constant flow of energy and matter (information) and non linear interconnectedness. Thus the case study evidence supports the notion of the importance of energy as a resource and a stimulus for change. This suggests that organisations should not only pay considerable attention to the 'hard' resources available for organisational change processes but also the 'soft' energy available, which is less readily identified.

The workshops stimulated and encouraged the free flow and creation of information within the programme which Nonaka (1988) considers one condition necessary for the deliberate generation of chaos. Wheatley (1994) describes how a mixture of people working together can self organise, weave potent visions of the future and create a rich fractal dynamic that energises the organisation. This notion is supported by evidence from the case study. The programme brought together a significant number of staff from all categories, grades and locations and gave them the opportunity to exchange ideas, to challenge each other and the status quo and to engage in interactive learning

experiences. This created two things: energy and excitement for many of those associated with the programme; and information which flowed in a variety of feedback loops between individuals in the workshops, between colleagues and groups. This matches Wheatley's descriptions and supports her notion that using the right kind of workshops can stimulate and create a series of local change dynamics.

Analysis of the three New Directions teams, and their fit with Stacey's (1996) description of self organising groups, provides further evidence of principles from the new sciences at work, especially self organisation. The case study provided additional data which added to Stacey's definitions of self managed and self organised teams. This makes it possible (see Figure 10.2. over leaf) to show these differing approaches to team working set against the organisational contexts of four simple models of organisations.

In the diagram the first 8 statements that define self managed and self organising teams are based on Stacey's (1996) definitions. The final 5 definitions are devised from readings Kauffman (1996), Stacey (1992,1993, 1996), Waldrop (1994), Wheatley (1994), experience and the case study data. The definitions that describe a committee are based on observations and experience and in relation to the definitions for self managed and self organising teams.

The top of the diagram shows a line representing the changing flow of team working from the very formal committee system on the left to the very informal self organising team on the right. At the bottom of the diagram another line represents the flow of organisations from the bureaucracy on the left to the emerging 21st century or complexity management organisation of the future. This also represents a flow of time as well as process from the bureaucratic and classical models of organisations at the beginning of this century, through the

Team working in Organisations
A Fluid Spectrum of Process

Committee	Traditional Team	Self Managed Team	Self Organising Team
Part of formal structure		Part of formal structure	Not part of the formal structure
Formal & permanent		Formal temporary or permanent	Informal & temporary
Not spontaneously formed		Not spontaneously formed	Formed spontaneously around issues
Controlled by senior management		Indirectly controlled or steered by senior management	Boundaries influenced by senior management
Managers decide 'who' & 'what'		Managers decide 'who' & 'what'	Team's members decide 'who' & 'what'
Represent & reinforce the hierarchy		Replace the hierarchy	Often in conflict with or constrained by the hierarchy
Represent senior management		Empowered by senior management	Empowered by team's members
Strongly shared culture		Strongly shared culture	Cultural differences provoke & constrain
Little or no sense of shared purpose		Some sense of shared purpose	Stong sense of shared purpose
Order via control & formal processes		Order created via recognised processes	Inherent order emerges
Behaviours governed by procedures / roles		Behaviours influenced by procedures / roles	Spontaneous, creative behaviours
Strong sense of role commitment		Strong sense of team commitment	Strong sense of personal commitment
Low levels of energy & enthusiasm		Some energy & enthusiasm	High levels of energy & enthusiasm

Bureaucracy	Traditional Organisation	Modern Traditional	Complexity Management 21st Century Organisation

Figure 10.2. Team Working in Organisations - A fluid spectrum of process

adaptive, experimental models of the 80s and 90s, to the latest emerging concepts. The organisation of the 80s and 90s is referred to as 'modern / traditional' because although most have new structures and updated working practices many of them still think in a traditional way about people and processes.

A model is necessarily a simplified version of reality and the reality is that in most organisations and most teams there are facets of more than one model. But it shows how self organising principles used in a team context are an extension, or further development, of today's self managed or empowered teams and a move towards a new sciences orientated view of team working.

Evidence from the case study supports Nonaka's (1988) model whereby involving individuals in self organising groups help create a self organising change process. This thesis also shows how teams of activists played an important role in creating a self organising shadow system (Stacey 1996) that challenged the formal structures of an organisation and encouraged the formation of other informal networks. It also supports Stacey's (1996) concept of a shadow network system as shown in figure 9.3 in Chapter 9 where the New Directions Action Group is compared with Stacey's view. These informal networks formed by New Directions participants created new connections within the University and new information flows which pushed some individuals and some pockets of the University away from an equilibrium state. Stacey (1996) warns it can be difficult maintaining an organisation in a balance between the forces of order and disorder, or on the edge of chaos, and ultimately at the University the forces for stability pulled too powerfully for the programme to survive. Further, the evidence shows the effectiveness of self organising teams in accomplishing their tasks and in creating environments for rich learning, even when they exist in a traditional organisation.

10.2. Creating a New Sciences based Change Process

This thesis through analysis of the New Directions change process shows how it is possible to create an organisational change process which links together ideas from the new sciences and some of the newer approaches to organisational change based on involvement and learning. Drawing on the data in Chapters 8 and 9 this section lists some important factors when considering such a change initiative. In so doing it provides further evidence and detail to support the existing literature.

1. As discussed in Chapter 5 one way to create an effective, new sciences orientated change process is to move an organisation towards the 'edge of chaos' (Battram 1996, Merry 1995, Stacey 1996, Turner 1996). One way to do this is to stimulate changes at the micro level, primarily by focusing on people as individuals and groups and encouraging them to think and to behave differently. Small changes constantly happening at this level can affect the larger systems and over time real changes may occur. Other strategies include heating the system (Michaels 1990) by adding in information from other organisations, bringing out differences and nurturing the small changes. These together with on going changes at the macro level will move the organisation away from equilibrium. At the Open University, for example, a number of macro changes occurred which were the result of a traditional, sometimes 'deliberate' (Mintzberg and Waters 1989) approach to strategy. Changes in the University's external environment also influenced a number of changes at the macro level. As Chapter 4 indicates many organisations today in considering a strategic change process pay considerable attention to the grand design or the larger organisation wide systems. A new sciences based process would pay equal attention to encouraging change at the micro-variable or individual level.

2. A learning approach to strategy (Pedler et al 1991) whereby all staff are able, if they chose, to contribute to strategic policy making may be facilitated by setting up a series of workshops about the future plans of the organisation which bring together mixed groups of staff from all areas, categories and levels to share ideas and experiences. This gives many staff an opportunity to become involved in creating future strategies helping to start small individual waves of change. This approach is reinforced by encouraging individuals to bring about changes themselves. The New Directions experience indicates that involving people in the change process will help create multiple change dynamics at an individual and group level which have the potential to bring about significant changes over time.

3. New Directions style workshops may be used to create energy for change. It can often be difficult for people to discuss visions of the future because of their awareness of the gap between reality and the vision, but this gap produces creative tension which Senge (1992, 1994) identifies as an energy source. The first New Directions workshops explicitly sought to explore the 'gap' and this notion of visioning the future and moving reality forward to meet it was an enduring theme that ran through all the programme. An organisation needs to take positive action to make the vision a reality and so reduce the gap. If this is a slow process then frustration and emotional tension arise. But for some individuals the gap will produce energy for change as the efforts of the New Directions volunteers confirm.

4. Setting up self organising teams is one way to encourage a self organising process for a range of change activities to emerge within an organisation (Nonaka 1988, Stacey 1996). As I have shown in Chapters 8 and 9 the teams may also stimulate more changes by moving ahead on specific change projects. Further, each group has the potential to create a range of learning experiences and thus opportunities for individual and group learning.

5. An organisation needs to provide the right environment or 'backcloth structure' (Johnson 1996) as a prerequisite for a self organising change process. This would include providing safe organisational 'space' for experimentation and learning (Dale 1994, Pedler et al 1991) and recognition of the role that humour can play in developing and maintaining equality of participation. Consideration of the data in Chapter 8 suggests that an organisation wishing to do this should take into account its ethos and values and the type of activities it provides. Figure 10.3. suggests some important provisions derived from the data.

Figure 10.3. Environment, Ethos, Values & Activities.

Environment	**Ethos & Values**	**Activities**
Safe	Egalitarian	Fun
Stimulating	Open	Experimental
Responsive	Democratic	Challenging
Supportive	Reflect those of the organisation	Use eclectic staff groups
Non political		
Inspirational		Offer variety of learning opportunities

6. A new sciences derived change process is essentially free flowing and unplanned but as shown in Chapters 8 and 9 it may well have a more traditional and 'deliberate' approach to strategy as its starting point. Such an approach blends the 'old' with the 'new' and by so doing avoids excessive shifts of approach that both individuals and organisations often find hard to handle. This makes it a useful *transition* model of strategy. Further, such a change process integrates spontaneous and intuitive approaches with planned and rational ones and merges the 'old' and 'new' scientific paradigms in a healthy balance (Capra 1996). I discuss this strategic approach and the 'transition' model further in my concluding section, 10.3. Additionally, the involvement of more planned and structured processes that a bureaucratic organisation like the Open

University offers, ensures that any self organising systems are not likely to pull the organisation into disorder and possibly disintegration (Merry 1995). This suggests that a fairly mechanistic organisation may be a good one in which to experiment with ideas from chaos and complexity without any real fears of breakdown.

7. Evidence from the New Directions case study suggests that equality of involvement is crucial in encouraging the dismantling of cultural and hierarchical barriers which could block the free flowing nature of the process and impede equality of participation. Thus the use of experienced, skilled and trusted facilitators is very helpful. Further, they may be useful when setting up self organising groups to encourage the development of collective experience and the emergence of group adaption. In this case, I would suggest the facilitators will also need to understand the thinking and the principles that underpin self organising groups and to have a high level of credibility with the groups themselves.

8. Any organisational change process, including one derived from the new sciences should aim to work with those who want to be involved. As the evidence from the New Directions teams illustrates one way to do this is by the creation of an involving process that uses self selection or volunteering. Such a participative process creates an opportunity for people who need outlets for their energies and ideas.

9. Analysis of data from the case study in Chapters 8 and 9 suggests that if organisations are to create the conditions for the use of self organisation and other principles derived from the new sciences they should consider not only providing the right 'backcloth' or context but also the kinds of beliefs and behaviours, both espoused and actual that underpin the process. Figure 10.4 draws on the data to suggest some of the beliefs and behaviours that might

help.

Figure 10.4. Beliefs and Behaviours.

Beliefs	Behaviours
The future cannot be predicted	Relaxed
'Expect the unexpected'	Responsive
Human networks and interactions create change dynamics	Listening Feeding back
Humour and fun can encourage change	Communicating
Individuals can make small changes which are very valuable and should be encouraged	Letting go Trusting Supportive
Mistakes are opportunities for learning and innovation	Sharing Adaptive
Experimentation goes hand in hand with innovation	'Walking the talk' Resolute
Energy & enthusiasm in my staff is as good as money in the bank	Encouraging others to let go and to restrain their controlling tendencies.
Change is seen and unseen & cannot always be easily measured	
I will probably feel very uncomfortable but it is part of an ongoing learning and adaption process for me and everyone else in this organisation	

The Investors in People process, discussed in Chapter 8, illustrates how failure to pay significant attention to beliefs and behaviours may undermine a well intentioned change process. IIP was concerned to change the University via people development but although it espoused the 'softer' approaches of training and development, and the need for better communications and effective appraisal its actual behaviours mirrored a more mechanistic and traditional approach which sent out contradictory messages reflecting 'hard' approaches and values.

10. Having several key people in an organisation who understand some of the key processes, such as self organisation, the Butterfly Effect, emergence, concepts of order and disorder, and the 'edge of chaos' will help a New Directions style change process. They will encourage participants to let go and

see what happens and to feel comfortable not trying to predict events or control outcomes.

11. In most organisations such a radical approach to change will have many critics and detractors and it will need powerful support and supporters if it is to get off the ground and survive for long enough to have a significant and recognisable effect. The New Directions story may have been short lived without the support of the PVC, Strategy. In this respect the process is like any traditional change strategy, needing powerful support.

In Chapter 8 I have shown how, within its own sphere of influence, a New Directions or a 'transition' style change process may be successful in a traditional, essentially bureaucratic organisation like the Open University. Since the data for the case study was collected and analysed additional data collected in 1999 further adds to these findings. In December 1998 the Pro Vice Chancellor, Strategy (Planning and Partnerships), Geoff Peters, announced a series of 10 strategic planning workshops entitled 'Shaping the future of the OU'. A cross section of staff from across the University were invited to attend to increase their understanding of strategic issues and 'to provide a rich contribution to developing a picture of the future OU' and 'to help shape the future of the OU'. Some 300 staff were invited to attend.

Thus some six years on from the start of the New Directions programme the University's top management sought again to consult with a wide cross section of its staff on strategic issues and to use the process to help shape its strategic thinking. The Pro Vice Chancellor, confirmed in a conversation in August 1999 that his decision to hold the workshops had been influenced by the success of the original workshops. Further, he had learnt the importance of following up on the early workshops and accordingly a final workshop was held:

'to present the outcomes of the earlier workshops, and to make further progress on strategic issues. It is hoped that the outcomes of this workshop will contribute directly to Plans for Change, and help us to improve this important document'.

He also thought that the New Directions programme had helped many of those involved to become more flexible and more student focussed. New ways of working had developed and a lot of new initiatives had come on stream. In his view New Directions had achieved 'a process of getting the OU to change.' He observed that many of the people involved in the programme had changed and many had gone on to introduce changes. He spoke of:

'Breaking down of organisational structures and work....a general broadening of roles in the OU. People more willing to consider organisational change.'

10.3. Conclusion

The Open University is a complex and complicated organisation with many cultures and management styles but with overall a traditional, bureaucratic approach to strategic change. This thesis investigated a change process called New Directions at the Open University between 1993 and 1996. It considered it in the context of the University's history and development and its internal and external environments, discussed in Chapter 7. As the evidence in Chapter 9 and 8 shows New Directions drew on some of the ideas and insights in the management literature derived from the new sciences and was influenced by some of the more innovative management thinking, particularly on learning organisations. This thesis focused on the human dimension of change and explored considerations of context and the cognitive and emotional processes

needed to underpin and support such a process. In this final section I bring together my concluding thoughts.

This thesis adds to the literature on strategic management by showing how notions of 'deliberate' and 'emergent' strategies (Mintzberg and Walters 1989) can be further developed by using ideas from the new sciences. Further, Mintzberg and Waters and others developed theories on strategic management based on empirical data. Thus these researches would contribute valuable insights into the effectiveness of what was currently happening, but I would contend are unlikely to indicate radical new options. In spite of this, however, there are interesting parallels between the highly 'emergent' strategies and self organising interventions. My data is drawn from an organisational change process which is a rich mix of traditional and accepted approaches, (including those described by Mintzberg and Waters and others) radical and innovative approaches (derived from Handy, Morgan, Senge and others) and the new sciences and those interpreting them for organisational use (Stacey, Wheatley, Nonaka, Merry and others). Thus I would suggest that my research offers some valuable pointers to future developments that build upon existing theory. I develop this notion further in later paragraphs.

This thesis argues that understanding of the new sciences supports some of the newer approaches to organisational change and transformation which recognise the importance of the role of learning in the change process. Writers on the learning organisation consider that change is inextricably bound up with organisational learning (Dale 1994) and that learning is key to survival (Pedler et al 1991). Complex or evolutionary learning is viewed as a prerequisite for real change. A learning organisation encourages people at every level to learn afresh and to reframe their world (Handy 1990). The new sciences consider group learning and adaption skills as vital for the survival of a species. Thus these two approaches both support a symbiotic notion of change and learning.

Individuals in groups learn from each other and from the complex series of interactions that is always taking place in their group. Socially organised insects, birds and mammals all use complex, adaptive learning to survive. Organisations can use this model to improve the learning, adaption and therefore the survival chances of their own species, the organisation. By creating richly diverse groups they provide a complex range of new interactions and experiences that stimulate learning. I believe my research supports this view and shows that by using mixed groups an organisation can help to raise the levels of complex learning for individuals and groups and thus the level of adaptive skills within those parts of the organisation where they have significant influence.

This thesis supports the importance of Senge's (1992, 1994) notion of creative tension as a source of energy for change and demonstrates one way to create it by setting up workshops which encourage individuals, groups and thus the institution to work towards shaping and achieving newly articulated visions.

Morgan (1986) points out the difficulties of fostering double loop or complex learning in bureaucracies. The case study evidence in Chapter 8 reinforces Morgan's proposals on how to overcome this by creating a learning / change intervention which values openness and reflection, encourages challenge and debate on important issues, and creates a participative or grass roots involvement in planning. It also adds to Morgan's work by demonstrating how such an intervention can be created in a real world bureaucracy. Further, it supports his belief (1993) in the importance of the role of shared understandings and personal empowerment in the creation of more effective organisations and most importantly, the value of using self organisation as a way to bring about constructive change.

This thesis argues that a new sciences influenced change intervention is

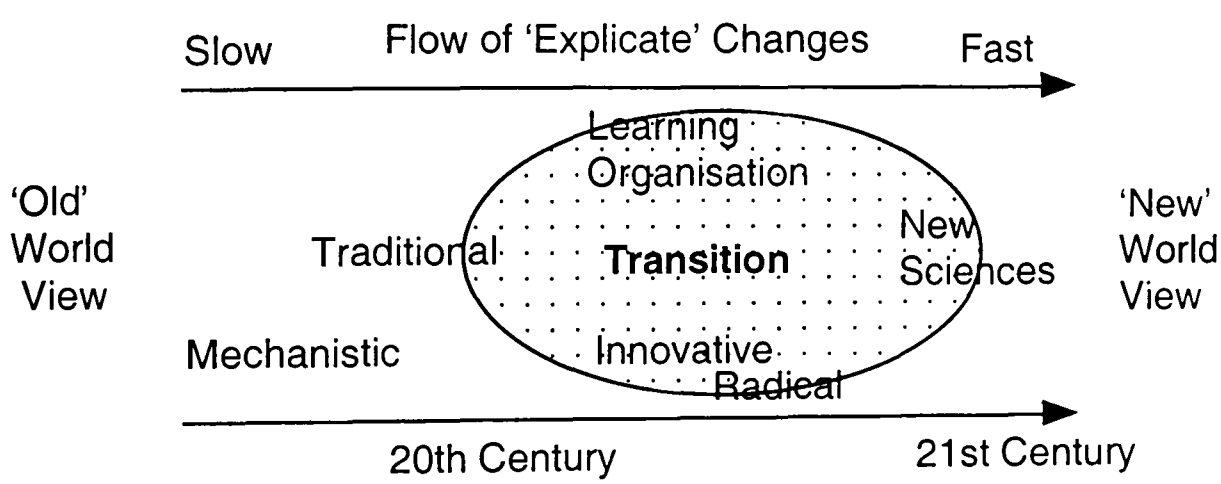
applicable and useful because people are essentially self organising and human systems are essentially self organising systems. Yet paradoxically the longing for order in an apparently disorderly world has encouraged the belief that synthetic, manmade systems can deliver order. This has led to the development of the complex and complicated controlling systems used to impose order that underpin the modern bureaucracy. But the control and order they seek to create, however, is constantly disturbed and threatened by human needs and behaviours. There is an inherent disharmony in this arrangement. As this thesis demonstrates a New Directions style approach takes into account the human factor and shows how new notions of order via self organisation can work successfully in a 'manmade' environment and harmonise human needs with those of the organisation. Further, as the evidence shows, the application of self organising principles in an organisation can locally influence a change intervention and self organising teams can deliver discrete change projects as well as creating their own dynamics for learning and change.

My research shows how an approach to organisational change based on ideas from the new sciences and some of the newer management literature offers a way of stimulating and achieving an innovative change intervention. This approach makes an important contribution to notions of change and the change process in organisations and most importantly has genuine applicability. Such interventions could work well in highly structured and formal settings providing the considerations in section 10.2. are taken on board. The case study on the Open University provides an example of how innovative ideas and learning organisation principles along with ideas derived from the new sciences helped to introduce changes in a hierarchical and often ponderous organisation in those areas influenced by participants active in the process..

This thesis tentatively proposes that the evidence from the New Directions case study outlines a new approach to strategy - a *transition* strategy, which I have

referred to earlier in Chapter 9. Figure 10.5. illustrates the *transition* approach to strategy. It is a hybrid strategy because it draws on many influences and existing strategic approaches and it has some roots in traditional ideas. It is a strategic approach which creates a bridge between old and new and serves to integrate traditional theories of organisational change with more innovative and radical models.

Figure 10.5. Strategic Approaches to Organisational Change



The 'Flow of Explicate Changes' refers to Bohm's (Morgan 1986) theory of implicate and explicate order, this acknowledges newer notions of change discussed in Chapter 4. The 'Old World View' reflects classical science and its influence on organisations, discussed in Chapter 3. The 'New World View' is that which is emerging through the work of modern scientists many working in chaos and complexity science, which was reviewed in Chapter 2. 'Traditional' approaches to strategy, have been discussed in Chapter 8 in relation to the New Directions case study and include Mintzberg and Waters (1989), Eccles (1993) and Quinn (1989). Chapter 8 provides evidence of the influence of ideas drawn from the learning organisation and the work of Morgan and Handy which are indicated by the reference to 'Innovative' and 'Radical'.

The evidence in Chapter 9 illustrates how ideas drawn from the new sciences

directly or indirectly influenced the New Directions programme. A *transition* strategy is not a fixed approach but a process that draws on a rich flow of theories and ideas. Its core purpose is to flow in the direction of a new sciences dominated approach that resonates with the emerging new world view (Toffler in Prigogine and Stengers 1984). Thus as it moves forward so it makes a break with the past in the sense that it diminishes its influence and looks forward. It is an approach that is integrative and not divisive as it seeks to provide an inclusive bridge of the 'old' and established with the 'new' and the challenging. It is not as radical as proposals from Stacey and Nonaka but it may prove more digestible in more traditional and cumbersome organisations like the Open University where ideas on change still draw strongly on the classical scientific framework and notions of radical, revolutionary change would be resisted.

Further, as my research shows a *transition* strategy approach puts the involvement of the people in an organisation at the core of its strategic thinking and so taps into a wealth of ideas and experiences. In some cases this may lie just below the surface, in others where there has been little or no democracy and plenty of control then it may be buried under a thick layer of suspicion and cynicism. This kind of process is one way to create an energy flow within the organisation as energetic people respond and the buzz they create encourages and energises others. As the evidence in Chapter 8 shows energy, enthusiasm and goodwill will help create local changes delivered by those actively involved in the process, even when other resources are limited. Using a *transition* strategy involves adopting a participative, learning process that is infused with self organising principles and which involves people, both intellectually and emotionally, and seeks to energise them and so create a change dynamic within their spheres of influence.

One of the possible outcomes of using a *transition* strategy may be the emergence of a 'grassroots' or 'democratic' strategy for action as discussed in

Chapter 8.

This thesis offers some explanations of the underlying dynamics of change referred to by Morgan (1986). The case study evidence illustrates how the dynamics of change in part spring from the creation of complex, adaptive systems. These spontaneous, dynamical systems are self organising, learning and adaptive. They may be created by groups or active individuals when self organising principles and spontaneous learning behaviours are enabled to flourish. Thus, as the evidence in Chapters 8 and 9 illustrates, once a participative or *transition* type change process is underway then a number of related dynamics emerges. There is a communications dynamic as information and ideas arise and create new patterns of response. There is a responsiveness dynamic. Most importantly, there is a learning dynamic that becomes more and more powerful and complex as participants' experiences increase and intensify. All these systems interact with each other creating new dynamics and new forms of energy among energised participant groups.

A 'transition' approach to change is a real world change strategy that enables an organisation to blend the strategic with the operational. It is a systemic approach whereby both the thinking and planning parts of the organisation and the operational or producing processes are involved in the change intervention. This replaces what Senge (1992) describes as the dichotomy between those who think and those who do. It offers an integrated, real world approach where thinking and activity happen simultaneously. Also it helps to negate and balance out a long tradition where 'in the Anglo-Saxon world we tend to reward people for the great plan or the grand strategy, and to see the implementation of that as a separate and lesser thing' (Dawson 1996).

This thesis argues that appreciation and understanding of the new sciences offer an opportunity to reinterpret organisational life and to gain a more realistic

attitude. Analysis of the case study evidence suggests that people are instinctively self organising if the old controlling mechanisms and mind sets are relaxed.

To conclude, this thesis argues that ideas from the new sciences are highly relevant to organisational change theory and that self organising principles and self organising teams, in particular, can have useful applications when considering local change interventions. They support and enrich some of the newer ideas on organisational change theory, particularly learning organisation concepts. Further, this thesis supports and adds to the work of those writing on the application of the new sciences in organisations, particularly Stacey's work. By undertaking a case study into the New Directions programme, which was a real life change process using ideas from the new sciences, this thesis adds not only to the theory but to the practice. It also adds to understandings on the dynamics of change by investigating the human response and its emotional dimension. Further, it looks to the future and proposes a way forward with the notion of the *transition* approach to strategy.

APPPENDIX 1 - INTERVIEWS

Example 1

Core Question: Would you describe the team as a formal or informal group?

CONFERENCE TEAM

2. INFORMAL - linked to the OU structure - 'yet it was neither part of it nor apart from it'
5. INFORMAL - because everyone a volunteer and they chose the tasks they wanted to undertake.
8. INFORMAL - especially when compared with other OU groups
9. INFORMAL -
10. INFORMAL - no-one had any vested authority
15. INFORMAL - 'no ceremony' and 'no formal agendas'
16. INFORMAL
17. FORMAL in sense it didn't waste any time - but processes and behaviours were INFORMAL. Also not part of formal structure

STAFF SURVEY TEAM

4. INFORMAL
6. INFORMAL - because 'themes evolved rather than being planned'
7. INFORMAL on the whole though has some FORMAL aspects
11. Neither INFORMAL nor FORMAL - but in between
12. 'Fairly FORMAL' in that it had a formal task to carry out and a fixed time scale
13. 'A FORMAL team with a job to do which operated in an INFORMAL way'.
14. 'An INFORMAL group but with FORMAL leadership'. The Director of PR and 'you' kept the team within the OU system without it becoming a part of it or being 'subverted'
18. INFORMAL although did 'have a formal aspect' ie a specific object to achieve QUOTE from INTERVIEW
20. Fairly INFORMAL because it had lots of different attitudes and ideas and everyone brought their own working practices.

Example 2

Question: Describe New Directions in one sentence.

Response: 19 responses.

1. New Directions was 'an attempt to be a catalyst to organisational change in the University.'	2. New Directions was 'a very worthwhile exercise.'	3. 'The New Directions workshops that the University held were needed.'
4. 'When it was happening it felt as if a new broom was going to sweep away the old ways.'	5. 'New Directions was a way of involving staff in developing a strategy which grew into something more than that.'	6. 'An attempt by the University to involve all its staff in the present and the future in a global sense.'
7. 'Change - encouraging people to be flexible towards the thought of change.'	8. 'New Directions: a process which addressed organisational change using effective staff involvement at all levels.'	9. 'An ideal tool to push the University into the future.'
10. 'A short cut mechanism for making change.'	11. 'A well-meaning but misguided attempt to involve different staff categories in the decision-making and "ownership" of the decision-making process which ultimately caused dissatisfaction.'	12. 'Management's attempt to promote grass roots ownership and participation in change.'
13. 'New Directions enabled all staff of the University to contribute to innovative ways of achieving forward planning.'	14. 'A dynamic programme of enthusiasts seeking creatively to change the OU for the better.'	15. 'A vehicle for making the impossible happen.'
16. 'A subversive influence on change; one of the many needed (to) ensure the OU adapts to changing circumstances.'	17. 'Trying to take the University forward in a style that brings out the best in all staff.'	18. N/A
19. 'A softening up process towards change acceptance.'	20. "New Directions was an opportunity to open up about some of the issues and to discuss fears.'	

Example 3

Question: What was it like working with a mixture of staff from all categories? Describe any advantages.

1994 Conference Team

2. A bit intimidated at first. but 'the boundaries came down quickly'.	5. Really enjoyed it. More interesting & more lively than a normal team because ' the interactions were much richer and there was more diversity of experience'. Refreshing change.	8. 'Good fun'. and 'very productive'.
9. 'Fascinating'. The mixture gave the Team 'an edge'.	10. 'Refreshing' 'Everyone brought 'something different' to the meetings and this was good.	15. Very enjoyable. 'They were a great crew'. Everyone brought different issues from their areas & this gave the Team 'a wider spectrum'.
16. 'Great fun'. Lots of different points of view. Learnt how different parts of the OU worked & learnt to see things from other perspectives.	17. 'Good fun'. No hierarchy. 'The people themselves were buzzy'. Everyone listened, a genuine sharing of ideas. Enjoyable meetings.	

The Staff Survey Team

4. Barriers soon broke down. Insights into problems of other staff.	6. Valuable to hear such different opinions.	7. 'Brilliant. Enjoyable. 'A really good group'.'
11. Worked very well. Different perspectives put forward & shared - very advantageous.	12. 'Good'. 'Lively ideas' & 'good problem solving'.	13. 'Very good'. Lots of ideas and fresh perceptions.
14. 'Worked very, very well', brought different perspectives.Met staff from other areas. Gained 'a more rounded picture of the OU.'	18. Advantageous because of the different viewpoints.	20. 'Very different'. Never worked with such a broad mix, not sure how it would work & initially apprehensive. 'A variety of input & responses'. Met staff from other areas & learnt about their work.

Example 4

Question: Can you recall / describe the main themes / issues that came out of the Conference and tell me about them?

Response: 17 responses. (1 of those at the Conference missed the final plenary session).

5 respondents needed a 'memory jog' using the Conference Report from the

pack.

11 of the 17 stated that one of the themes that the Conference raised was about staffing issues and 10 identified the main staffing issue as concerned with the need for harmonisation / equalisation of working / employment conditions.

7 out of 17 also recalled that the need to improve marketing was an issue.

7 out of 17 also referred to the importance of New Technology development as an issue that came out of the Conference.

5 out of 17 recalled that the need to improve communications also emerged as an issue.

Only 1 of the respondents could not recall any of the issues or themes that came out of the Conference.

Question: Where do you see New Directions in relation to the formal structure of the University and why do you think this?

Response: 19 responses.

14 did not see New Directions a part of the formal structure.

4 did see it as on the fringes of the formal structure. Of these 4, 2 saw it along with 4 other respondents as linked to the formal system. Further, 4 of those who saw it linked to the formal structure identified this link as being via Geoff Peters, PVC, Strategy. One stated that it was 'linked by a silken rope to the top of the organisation by Geoff'.

4 of the 14 described New Directions as either a shadow system or part of one.

1 of the 14 commented that New Directions was outside the formal structure but was trying to break it up from the outside and to do so by getting inside it.

5 did not see New Directions as outside the formal system.

2 thought this was because of its links with the PVC, Strategy.

1 observed that New Directions was a 'a popular version' of the formal system.

One senior manager described New Directions as changeable. Sometimes it was a ginger group, at other times almost allied with the structure, and at other times it was a counter organisation group (almost subversive), not by what it was doing but by the messages it gave out and how people perceived it.

APPENDIX 2 - QUESTIONNAIRES

Example 1.

Scaled Questionnaire

Question	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. New Directions was a 'people's' programme	5 1	3 8	- -	- -	- -
2. New Directions tried to involve all the staff in contributing to the OU's future	7 2	1 7	- -	- -	- -
3. The New Directions Programme responded to issues and ideas raised by the staff	6 2	2 7	- -	- -	- -
4. New Directions was a 'movement' for change	7 1	1 7	 1	- -	- -
5. Small changes can, over time, lead to major changes	4 4	4 3	 1	- 1	- -
6. There are real benefits for an organization when staff at all levels are able to get together and share ideas	7 7	1 2	- -	- -	- -
7. Given the opportunity individuals can make a difference to an organization's future	6 5	2 3	- -	- -	- -
8. Effective change throughout an organization is achieved by involving everyone concerned	6 2	2 4	 1	 1	 1
9. Effective change throughout an organization is achieved by top level long term planning	3 3	1 4	2 2	2	- -
10. New Directions encouraged people to make changes themselves	5 2	2 4	 3	1 -	- -
11. New Directions encouraged better communications about future plans	5 1	3 7	 1	- -	- -
12. New Directions challenged the 'established' way of doing things	4 1	4 6	 1	 1	- -
13. New Directions is no longer very effective	1	2 6	4 3	- -	1
14. A new New Directions style programme is needed to effectively change the OU	4 2	3 3	1 3	 1	- -
15. A new initiative involving all staff in changing the University is needed	6 3	1 3	1 3	- -	- -

Example 2

Statement 1: New Directions was a 'people's' programme.

Levels of agreement.

Group	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
'Activists'	6	11	0	0	0
Participants	3	6	1	0	1
All / Total	9	17	1	0	1

Example 3.

Statement 2: New Directions tried to involve all the staff in contributing to the OU's future.

Levels of agreement

Group	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
'Activists'	9	8	0	0	0
Participants	4	4	0	2	1
All / Total	13	12	0	2	1

Example 4

Experience of working in the New Directions Teams

8 respondents in Conference Team. 9 respondents in Survey Team

Decision making

	Conference Team	Survey Team
Decisions were made quickly	8	7
Decisions were made slowly	3	1

A majority in both teams agree that decisions were made quickly rather than slowly.

Effectiveness

	Conference Team	Survey Team
It was an effective way of working	8	9
It was an ineffective way of working	0	0

There is unanimous agreement that both teams had an effective way of working.

How like meetings at the OU were the meetings of the two Teams?

	Conference Team	Survey Team
Not like most of the meetings I attend.	5	5
Not like any of the meetings I attend.	1	0
Like some of the meetings I attend.	3	5
Like many of the meetings I attend.	0	0

There was complete agreement that the meetings of the two teams were not like many of the meetings people attended and a majority thought they were not like most or even any of the meetings they attended.

Equality

	Conference Team	Survey Team
Everyone's contribution was equally valued	8	9
Everyone's contribution was not equally valued.	0	0

There was unanimous agreement that everyone's contributions were equally valued.

Example 5

Team Questionnaire - Part 2.

Experience of Working in the New Directions Teams

1994 New Directions Conference Team - 8 respondents.

Discussion 7	Debate 4	Dispute 1	Argument 2	Spontaneity 8	Fun 8
Tension 3	Conformity 0	Excitement 8	Boredom 0	Tedium 0	Unusual 6
Traditional 0	Creative 7	Routine 1	Orderly 1	Energetic 8	Bureaucratic 0
Anger 0	Cohesive 4	Self organised 7	Conflict 0	Empowered 7	Stimulating 8

The following words were selected by all the respondents: 'Spontaneity', 'Fun', 'Excitement', 'Energetic' and 'Stimulating'. 7 out of 8 selected: 'Discussion', 'Creative', 'Self Organised ' and 'Empowered'.

A third or more of the group selected the following: 'Debate', 'Tension', 'Unusual', and 'Cohesive'. No-one selected: 'Conformity', 'Boredom', 'Tedium', 'Traditional', 'Bureaucratic', 'Anger' or 'Conflict'.

The Staff Survey Team - 9 respondents.

Discussion 8	Debate 7	Dispute 2	Argument 1	Spontaneity 3	Fun 3
Tension 1	Conformity 0	Excitement 2	Boredom 0	Tedium 0	Unusual 0
Traditional 0	Creative 7	Routine 1	Orderly 1	Energetic 4	Bureaucratic 1
Anger 0	Cohesive 3	Self organised 4	Conflict 1	Empowered 5	Stimulating 7

8 out of the 9 respondents selected 'Discussion' and 7 out of the total of 9 selected 'Debate', 'Creative' and 'Stimulating'. A third or more of the group selected: 'Empowered', 'Energetic', Self organised', 'Spontaneity','Fun' and 'Cohesive'.No one chose 'Tension', 'Conformity', 'Boredom', 'Tedium', 'Unusual', 'Traditional' or 'Anger'. Thus anger would not appear to be associated with 'Dispute' or 'Debate, or 'Argument'.

APPENDIX 3 - WORKSHOPS

Example 1.

Thoughts and Feelings at the Conference - Workshop 1.

Spectrum of Thoughts

Negative				**Positive**
Conspiracy	Why aren't the senior managers leading us?	**What is this trying to achieve?**	People sharing ideas	Opportunities
Undercurrent of disgruntlement	Navel gazing?	Where is the OU going?	Looking for answers	Improvements in working
		Change for better or worse	Leadership	Caring & sharing
This doesn't apply to me	There's been change before	**We need to consider the New Technologies**	Reaffirming OU values	What can I do to make things change?
What planet are these people on?		How will I be affected?	Wider networks	Listening & learning
		Will I really be listened to?		

Thoughts on the Conference are spread right across the spectrum with the overall pattern reflecting uncertainty and questioning. On the positive side people are considering their own role at the OU and possibly how they may contribute and are enjoying the participatory and involving aspects of the experience. There is also a lot of interest in the need to harness the new technologies. More negatively there is a sizable area of concern regarding what the Conference is trying to achieve and how the OU will be affected. There is some cynicism and suspicion and some opting out.

Spectrum of Feelings

Negative				**Positive**
Worried	Confusion	Incredulous	Expectancy	Optimism
Anxiety	Unease	Disbelief		Hopeful
Distrust	**Apprehension**	**Uncertainty**		Empowerment
	Doubt	Surprise		Excitement
				Exciting
				Unity

The response is spread right across the spectrum. People are interested and involved. There are no signs of boredom or malaise. There is emotion associated with uncertainty, such as apprehension and anxiety but also there is excitement and optimism.

Example 2

Thoughts and Feelings at the Conference - Workshop 2

Spectrum of Thoughts

Negative				**Positive**
		New Technology ideas	Staff driving the change process	Good to give all workers a voice
	Self organisation can be unpredictable	So many ideas - how to chose?	An opportunity to remember OU openness	**Good to have the bosses listening**
		Self organisation seems to work better than top down planning		Staff involvement & representation
		How to maintain momentum?	Value of outside contributors	

The majority of thoughts are on the positive side of the spectrum. But there are questions to ponder such as, how to decide what to do next , and how to keep the momentum going. People appreciated having an opportunity to be involved in the future of the OU and to be heard by senior managers.

Spectrum of Feelings

Negative				**Positive**
Irritation	Concerned there might be lots of whinges & no action		**High expectations**	**Excited & optimistic**
Frustration	Nervousness	Surprise	Exhilaration	On a high
	Concerned would lower grades be listened to?			**Hope for the future**
	Concerned re non delivery of expectations			Excited about change
				Enthused about networks set up

Feelings about the Conference are fairly evenly spread but slightly more on the

positive side. Many of the negative responses are related to how well the day will go. Overall there is a predominance of excitement and expectation.

Spectrum of Both Thoughts & Feelings

Negative		**Positive**
	Top management were listening	Anticipated positive action as an outcome
	Cautious hope for OU's future	Optimistic
	Things going to change for the better	**Feeling I could contribute**
	Staff problems being recognised	Very positive Lots of people from all
	Stimulating ideas from other organisations	over OU - very impressive
	Everyone able to share ideas & views	Opportunity to gain a wider view of the OU
	Pioneering new ideas	

This response is overwhelmingly positive. Several themes emerge: the significance of being heard by top managers, the opportunity to contribute, the creation and sharing of ideas.

Example 3

Impact and Impression made by the Conference - Workshop 1

Impact Personally

Negative		**Positive**
Insecure	None that I can identify	Stood for Senate!
From complexity to simplicity leads to redundancy	Not known - how much would things have changed anyway?	Management training - identified need for
Longer hours	Can't plan career not yet had CDSA	
More work without recognition	Should bring in CDSA for me but didn't	

Impact on Colleagues

Negative	Positive
Very little - held meeting to tell them about it but it went down like a lead balloon None really still doing same job, most still don't know what New Directions is! What has changed - do senior managers really listen and communicate to all staff?	More emphasis on marketing ourselves.

Impact on the University

Negative		Positive
Headless Chicken!! (Heated up anxiety)	Impetus for CIRCE? and IIP!	Hastened by impetus of Conference: moves towards named degrees
Raised expectations which have not been met	Student Charter	Fed impetus for change
What is happening? What's going on?	USO > CRSC > Student Registry > ?	Customer Relations impetus

Example 4

Impact and Impression made by the Conference - Workshop 2

Impact Personally

Negative		Positive
	Greater awareness of views / feelings of others in OU	Involvement in developing the Mistakes Workshop
	First experience of total staff involvement in 22 years.	**Commitment to / Participation in the Staff Survey**
	Feeling that the potential implications had not been anticipated - play it by ear - if there are any resources to do it.	Learnt more about workings of other parts of the OU, mainly through contacts on the Survey Team and at Workshops.
	Given positive feelings re personal career development - enjoyed working with other staff to a mutual end	Really enjoyed the process of working with people from across the OU .. and learned a lot about how the OU works as a result - eg. visited regions for first time, listened to warehouse staff.

All the responses tend towards the positive end of the spectrum. Key themes: commitment to the Staff Survey, learning more about the OU, being involved with other staff.

Impact on Colleagues

Negative		Positive
Those not involved feeling it was a waste of their (increasingly short) time (Just another PR exercise)	Passed some by, but others thought that doing things the 'New Directions' way could make a big difference	Encouraged others already involved in the change process (AA Students) more recently Estates.
Change viewed with suspicion	What difference will it make to me?	Many colleagues felt that ND was to be <u>the</u> way forward for the OU
No faith in senior management's commitment to implement change	Not too noticeable - stricture of Divisional mission and views of Head of Division	

A spread across the whole spectrum. Views are almost equally split between those who thought that the Conference had made a negative impact on colleagues, those who thought it had made a positive impact and those who though it had made little or no impact. On balance views are more heavily weighted to the negative side.

Impact on the University

Negative		**Positive**
	Inter unit contracting - extension of BBC arrangement	Accelerated changes in terms & conditions
Increasing marginalisation of academics (by giving voice to other staff groups) leading to increasing power to senior management / professional managers	Some attempt at improving communications from top management - lunchtime briefings. But are these just a PR exercise?	Many outcomes of the Conference implemented via service agreements, staffing / equality issues progressed
	Was the new PVC (TD), KMI, INSTILL, the staff survey, staff policy changes, management development programme... all already planned, or did they really listen to us?	We had better do something then!!

There is only one truly negative comment. The marginalisation of academics echoes the concerns this one participant voiced earlier.
2 query whether it was the Conference that changed things or whether they were already planned or just part of a PR exercise. However, some organisational changes and a positive mood / attitude are attributed to the Conference impact.

Example 5

Achievement - The Conference and New Directions - Workshop 1

Themes / Issues that came out of the 1994 Conference and What happened?

Theme / Issue	What happened?
Need for a named PVC Staff to look after staff issues	Don't know - 1997 no change in PVCs portfolio*
Equalisation of conditions and opportunities for staff	Considerable progress on a number of these - Conference an important influence, had highlighted these issues
Marketing Strategy: everybody to market on behalf of the OU as part of coherent strategy	Some progress with proposals re lapsed students and move towards named degrees. Overall not enough market research, amateurish approach & many tv programmes out of date.
Communications - **need for senior managers to listen to staff and answer questions from staff	Progress - Email now available for everyone and some listening by senior staff - but promise of good communications dried up; uninvolving, demotivating and much strategic level stuff difficult to understand also IIP failed! ** not part of the culture or structure
IT development + need for staff training in using multi-media & support for students' use of IT	Great deal changed - creation of PVC post Technology Development. Lots of courses had gone over to multi-media (led to job losses at WT&DS). But vision of electronic delivery of learning not happened (some reservations about wisdom of this)
Staff Morale low	Autumn 1997 morale lower: issues not being addressed & fears of job loss from out sourcing
Expectation of a corps of people leading us forward	This had not happened

*NB. A new PVC post Research & Staff was established in 1998

Example 6

Achievement - The Conference and New Directions - Workshop 2

Theme / Issue	What happened?
Marketing Strategy: importance of customer research & corporate identity	Lunchtime session on marketing, OU Worldwide restructured, named degrees, Development Manager & Marketing Manager as key roles. Positive influence of Conference.
Staff policy; removal of unjustified conditions; more staff development	Conference put staffing issues on the OU agenda. Good progress on terms & conditions. New Development Manager post, 360 degree appraisal + Management Development Programme
Relations between Units / Departments	Inter - unit contracting - attitudes changed. More planning activities and Resource Flow Model driving change
Communications	Conference led to Lunchtime Briefings - now mainstreamed as 'On the Record' + N.D. series of leaflets & inserts in 'Open House'. Influenced availability of email & internet for all staff & led to programme of communications workshops
New Technology Development - fear of being left behind	Conference raised awareness & support for this. KMI, INSTIL & creation of PVC Technology Development.
Staff Morale Management training in people skills needed	After the Conference morale went up for about a year then the change in the external funding situation hit everything. Still low morale & lack of people skills.
Flatter Organisation	Some progress, now more ad hoc groups, before Conference all groups within formal structures. More recognition of need to cut across formal structures.

Example 7

Working in the New Directions Teams - Workshop 2

What it was like working in the New Directions 1994 Conference Team

Very focussed	Informal	Self motivated group - ran itself
Total focus on one event	Effective teamwork	
Total involvement	Personal buzz on the way the team worked	Speed & informality of business
No brownie points		Actually pushed ideas forward to implementation without the usual processes & formalities
Was not a career development tool	Feeling of empowerment & responsibility to complete the task	
'CAN DO' attitude	PVC attendance did make a difference to meetings	Bounced ideas around (linked to next point)
Few personal agendas		No limits on what is said / discussed
Was putting the institution first	Residual effect - type of bonding + common aim	Chair's role unusual - a volunteer - not elected

What it was like working in the the Staff Survey Team?

Positive	Negative
Empowered	Set up?
Democratic	Could have done more after the survey
Comfortable about role	Uncomfortable about role
Well balanced group	Uneasy about personal role
Need to be seen as external	Not detailed feedback
Meetings about results	No responsibility for results
Good representation	

Example 8

The 1994 New Directions Conference

Experience & Impact - Summary of Main Themes

Theme	Workshop 1 (Participants)	Workshop 2 (Activists)
1. The Experience (Thoughts & Feelings)	* What are the Conference's aims? * Apprehension & uncertainty about the future * Value of staff participation & involvement * Feeling of excitement * New Technology development is vital	* Good to have top managers listening to the staff * High expectations created * Feeling excited & optimistic * Hope for the future * Believe everyone able to contribute * Involvement of all staff * Concerned about the Conference itself * Value of contact with outside organisations
2. Impact & Impression i. Personal	*Feelings of job insecurity * No real impact * Positive impact	* Lots of positive impact * Joined the Staff Survey Team * Learnt a lot about the OU & people's roles
ii. On colleagues	* Very little or no impact	* Encouraged to participate & to make changes * Not a great deal of impact * Some viewed with cynicism
iii. On the University	* Increased anxiety & raised false hopes * Impetus for a number of major changes & initiatives	* Speeded up equalisation of staff terms & conditions. * Led to lots of major changes & initiatives * May have influenced other major OU initiatives

Issues and Themes that came out of the 1994 Conference

Workshop 1 (Participants) Issues	Workshop 2 (Activists) Issues	Outcome / Follow - up
1. Need for a named PVC Staff Equalisation of Conditions & Opportunities for staff	Staff Policy; removal of Unjustified Conditions; more Staff Development	Significant progress
2. Marketing Strategy	Marketing Strategy	Significant progress but more needed
3. Improved Communications	Improved Communications	Significant progress but more needed
4. New Technology development	New Technology development	Very significant progress
5. Expectation that a corps of people would lead the University forward		No progress
6. Low Staff Morale	Staff Morale	No progress
7.	Relations between Units / Departments	Progress
8.	Flatter Organisation Structure	Some progress

APPENDIX 4

Secondary Data

Internal Publications

Fact Sheet Sheet Number 1. An Introduction to the Open University. OU Public Relations Department. LH:JM/95.

Fact Sheet Sheet Number 1. An Introduction to the Open University. OU Public Relations Department. LH/0393.

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Learning to Manage , Draft Report. Institute for Employment Studies, University of Sussex. 1998.*

Internal Reports and papers

Planning for Quality Growth. Paper for the Strategic Planning and Resources Committee. Strategy, Policy & Resources Committee /19/3. June 1993.*

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NEW DIRECTIONS. Report on the Conference held on 18th May 1994.

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New Directions Spring 1994*; New Directions 1994 Conference; New Directions Autumn 1994 /Spring 1995*; New Directions 1995*

New Directions 1996*

Staff Survey Team*

External Correspondence

Letter from P. Tamkin, Research Fellow. Institute for Employment Studies, University of Sussex. 14 08. 97.*; Fax from S.Kent on behalf of P.Tamkin, Research Fellow. I.E.S., University of Sussex. 28.05 98.

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